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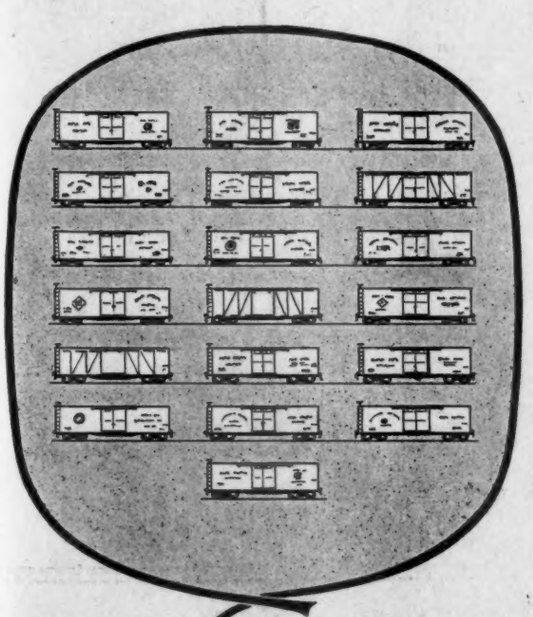
Railway Age

FIRST HALF OF 1923—No. 25 NEW YORK—JUNE 2, 1923—CHICAGO SIXTY-EIGHTH YEAR

—But the Rest Had Grip Nuts



A random inspection of trucks on a 30-car train leaving a joint inspection yard showed—

1. Five cars with one piece side frames.

2. Six cars with nuts missing from one or more box bolts. (These cars were owned by roads not using Grip Nuts.)

3. Nineteen cars with box bolts properly secured. Secured permanently and effectively with Grip Nuts.

Such an inspection on your own road may disclose that you, too, need Grip Nuts.

GRIP NUT COMPANY

Chicago, Illinois

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"ACCO" CHAIN

FOR PASSENGER TRAIN EQUIPMENT

Extra heavy duty service, covering a period of many years, proves convincingly that "ACCO" Chain is absolutely dependable for equipment of passenger trains. Wherever "Safety" is paramount, "ACCO" chains give more than the required security. They have reserve strength in every link—and made so strong and tested so thoroughly that maximum safety is the inevitable result.

We make chains for every railway purpose, including safety chains, truck chains, axle lighting generator safety chains, brake rod chains, door chains, hose chains, conductors' valve and signal chains.

Full particulars on request.

American Chain Company

INCORPORATED

BRIDGEPORT, CONN.

DISTRICT SALES OFFICES: Boston Chicago New York Philadelphia Pittsburgh San Francisco

Volume 74 Number 23

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EDITORIAL

Railway Age

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The Station Telegrapher

The railroad station telegraph operator—in railroad parlance "the operator"—performs varied functions, and is in danger of losing his time-honored name. It has long been evident that he ought to have been called "telegrapher" or some short word meaning that; but nobody started a change. Today his most important function is performed mostly by means of the telephone, but "telephoner" would be intolerable; and "telephone operator" is too long. Besides, in many cases, the operator is still also a telegrapher. To say simply "operator," meaning an operator of either Morse's or Bell's invention, is not a very good idea, for the word is used too much for operators of sewing machines, automobiles, stock markets, coal mines and other things. Why not say "telegrapher"? "Telegraph" means to write at a distance, and that is what he continues to do—he writes, at station Z, what the dispatcher sends to him from A. A message conveyed by telephone, when written down, becomes a telegraph message. If the inventors of the telegraph had known that messages would everywhere be read by the ear, it may be that they would have called it a telephone. The fact remains, however, that for all wire (or radio) communications which are written out on paper at their destination "graph" is a suitable and proper element in the definition. This note is not written with the expectation of effecting a world-wide change, on the spur of the moment; but rather with the idea of presenting, in season, a plea against the adoption of any name but a short one. "Telegraph and Telephone Operator" is unreasonably long.

When Efficiency Is Not Efficiency

During the recent convention of railway purchasing and stores department officers at Chicago an incident was related which, while referring directly to the delivery of store supplies to a machine shop, has a broader application. Recently a form of shop delivery was inaugurated at a certain terminal where previously it had been the practice of shop forces to draw their own supplies. From the preliminary studies it was understood that the new plan of employing a gang exclusively in shop delivery work under the direction and on the payroll of the store department, would not only facilitate the work of the shop, but also afford a substantial reduction of those shop forces formerly required to handle this work. The plan was accordingly inaugurated, but without any accompanying reductions in shop forces. It was simply a case of the mechanical department's profiting at the expense of the store department. In other words, a saving was made which was not a saving. The incident is typical of many that occur regularly in railway service. Savings are constantly being reported which, from the standpoint of the railroad rather than one department, are not savings. Thus, in all too many cases, savings reported by the purchasing department may only be reductions in first cost which upon further study may be shown rather to have increased the ultimate cost. Again well-intended efforts to promote efficiency in one department very often result in loss of efficiency on the part of another department. It is often a difficult matter to study every new plan inaugurated or unit of equipment installed with a view to ascertaining the actual results produced from all standpoints. Sometimes, of course, the increased economy or the enlarged efficiency produced by a change is so obvious that it does not require extended study. By all means, however, there should be such contact between departments and an honest desire in each department to function with a view to its relation to the entire railroad, that when economies are reported and efficiencies shown, such economies and efficiencies will be real and not imaginary.

A Million Dollars a Year

A community which hears of the advent of a new industry that will increase its business by a million dollars a year is likely to rejoice so vocally that the newspapers will congratulate each other and their readers for weeks, or months. That amount of money added to the payrolls of a city or a district makes a very definite stimulus to all of the principal lines of business. A railroad which establishes a large repair shop in a town is sometimes the beneficiary of this kind of popularity. The Southern Pacific suggests that a similar mutual benefit should follow the establishment of a new night express train between San Francisco and Los Angeles, "The Padre," which that company began running on April 15. These trains, one northbound and one southbound, travel about 950 miles every night; and as the operation of luxurious passenger trains now costs a good deal of money, it is estimated that, on these two, the company will spend a million dollars a year. And, of course, that money will be distributed throughout the varied channels which ordinarily receive a railroad's money. The treasury of a railroad may not be too freely compared with the bounties of nature, but it is not wholly an idle fancy to see in this distribution of money a modest stream of prosperity, the product of which is not unlike the fructifying results that flow from those wonderful irrigation ditches that enliven business in so many communities in the Western country.

Earnings in April

Such of the monthly reports of earnings and expenses of the Class I carriers for April as are thus far available indicate that the railways had very good net earnings during that month. The net is going to look particularly good when comparison is made with April last year because of the effect on the April, 1922, traffic and earnings resulting from the coal strike. The public has become so interested in railway net earnings that they are now published promptly in daily papers the country over. As published, the April figures will be compared with those for April last year with the possible danger that the comparison will prove so favorable as to lead to somewhat incorrect conclusions. A better comparison would be with March of this year when conditions were more like those of April this year than those for April last year would be. In March the railways had a net operating income of $83,568,473 and they earned 5.84 per cent on their property investment. The preliminary statements thus far issued do

not indicate that the April net is going to be much in excess of this figure and certainly not as much in excess of it as the marked improvement in April this year over April last year might make one so optimistic as to expect. Several of the roads, in fact, show smaller net in April than in March. In the following list there are shown the figures for fourteen leading carriers of which seven show better earnings in April than in March and seven show the opposite. Under the conditions, one ventures to suggest that there will be few cases in which the railway net earning reports will be perused with greater interest than will those for April.

NET RAILWAY OPERATING INCOME

Road	April 1923	April 1922	March 1923
Baltimore & Ohio	$4,011,487	$2,734,034	$4,381,004
Boston & Maine	473,226	308,506	—717,731
Chicago, Burlington & Quincy	2,425,005	1,198,999	2,378,718
Chicago Great Western	123,384	—67,921	190,126
Chicago, Milwaukee & St. Paul	1,066,294	216,635	1,548,299
Great Northern	432,211	707,964	882,554
Illinois Central	2,231,819	1,474,276	2,387,874
Kansas City Southern*	352,187	264,059	373,522
Lehigh Valley	646,853	—205,883	144,309
New York Central	7,838,524	4,273,988	6,695,535
New York, New Haven & Hartford	1,140,851	1,254,270	794,871
St. Louis-San Francisco	1,705,701	1,197,358	1,503,341
Southern Pacific	3,517,925	2,526,709	4,182,975
Texas & Pacific	180,350	—4,543	91,877

*Net after taxes.

A Point Not to Be Overlooked

In less than a month contracts have been awarded for the construction of 13 new water treating plants, six on the Chicago & North Western and seven on the Illinois Central. This fact is worthy of comment. With these contracts the number of treating plants already authorized to be constructed this year approaches 50. This number of treating plants represents a considerable investment and they will require additional expenditures each year for operation and maintenance. It is significant that in nearly every instance, the new facilities have been authorized by roads which have made similar expenditures on former occasions. Thus the Chicago & North Western is operating about 45 and the Illinois Central 36 water treating facilities at the present time. But, however suggestive this fact may be, certainly the results which have been credited to water treatment would seem to commend the subject to the close attention of every officer looking to the more efficient operation of trains, and to the reduction of operating costs. He would be an unusual executive who would not agree that any expenditure which would yield a sure annual return of 25 per cent on the investment, was not a good one. And yet in the reductions effected alone in fuel consumption, material and labor charges for locomotives, and time consumed at terminals awaiting repairs, water treating facilities are regularly credited with returns approaching and on some roads exceeding 100 per cent on the investment. A particularly interesting thing about water-treatment to the officer charged with the operation and maintenance of power, is that he derives a substantial and continuing benefit from it without at the same time being further burdened by a form of equipment or practice which increases the already large demand upon his time; in other words, the water treating plants are truly an accessory of the locomotive, yet are not a part of it, being rather fixed structures which remain on the right-of-way and depend for their operation and upkeep upon other than the mechanical forces. In view of this it seems reasonable to expect that other roads, encouraged by what those mentioned have accomplished with water treatment, will also be found investing in their first or additional facilities of this kind this year, particularly in view of the aid which such equipment can render in handling the record traffic expected this fall.

Car Loading Statistics

It is natural that figures relating to railway operation should be considered as of great importance as indices of business conditions in general. This results because the railways form one of the country's largest industries and because except under most extraordinary conditions if traffic is heavy and earnings are good the enormous railway purchasing power is commensurately good. In addition to that and possibly of greater importance from the business index point of view, is the fact that the volume of traffic is a ready index also of the volume of general business. Railway traffic and railway gross earnings can not be large unless the country's industry is busy enough to provide that traffic. There are many indices by which one may observe the trend of railway traffic. Interesting in this connection is the manner in which elaborate use is being made in many quarters of the various units reported by the A. R. A. Car Service Division, notably the statistics of car surpluses and shortages, of equipment condition and particularly of freight car loadings. We do not believe that it is an exaggeration to make the point that there are few indices of business conditions that rival the weekly figure of revenue car loadings. Whether the people who compile and publish the several statistical and business forecasting services would agree with such an unequivocal statement, we do not know. We do know, of course, that they are watching the car loading figure very carefully as it is reported by the A. R. A. Car Service Division from week to week. We doubt not also that they are gradually finding greater uses for it as they secure a better understanding of exactly what it indicates as to the trend of business conditions. The car loading figure has its primary value in its timeliness and inclusiveness. It is available approximately two weeks after the performance is completed and it includes every section and industry the country over. From this point of view it is an ideal business index worthy of inclusion with the several other indices which must be observed.

The Conference on "Valuation"

THE *Railway Age* repeatedly has charged that the real object of the radicals who are striving to get the lowest possible valuation placed upon the railways is not, as most of them contend, to secure fair railway rates for the public, but to force the railways of the United States into government ownership.

The most conclusive proof of the truth of this charge that could be afforded was provided by the so-called "conference on valuation of the railroads" held by the so-called "progressive group" in Chicago last week. The conference purported to be composed of men who are seeking only to secure a fair valuation of railroads, but almost every man who accepted an invitation to participate in it has been in the past an avowed advocate of government ownership, and every one of them would be openly advocating it now if he believed its open advocacy would help to bring it about.

Purporting to be a meeting devoted entirely to the purpose of securing a fair valuation of the railways, almost every address made at the meeting contained attacks not only upon the valuation and net return of the railroads, but also propaganda in favor of government ownership such as is constantly disseminated by every soap-box socialist orator in the country.

Held nominally in the interest of obtaining for the public lower railway rates, the conference was composed very largely of labor leaders who, by securing advances in wages and favorable working conditions for railway employees, have done more to increase the operating expenses of the railways and make necessary the present rates than all other people in the United States together.

Bearing in mind that this conference held itself out to be one on the question of valuation, let us briefly consider who were "among those present." Prominent in its activities were Warren S. Stone, grand chief of the Brotherhood of Locomotive Engineers, and president of the Plumb plan league, together with eighteen other labor leaders who for years have been engaged constantly in carrying on propaganda against private management of railroads, and most of whom are avowed advocates of the Plumb plan. Also present were six representatives of the Farmers' National Council, the National Farmers' Union, and the Non-Partisan League, all of them political farmers' organizations engaged largely or chiefly in the advocacy of government ownership. (The real farmers' organizations, the American Farm Bureau Federation and the National Grange, were conspicuous by their lack of representation.) Others present included Carl D. Thompson, secretary of the National Public Ownership League; Carl Vrooman, the author of a book published thirteen years ago advocating government ownership; E. W. Bemus and Delos F. Wilcox, "public utility experts," long well known as advocates of government ownership; Mrs. Glenn E. Plumb, widow of the author of the Plumb plan; Robert Morris Lovett, editor of the New Republic, the most radical highbrow magazine in the United States; R. F. Pettigrew, a former Populist senator from South Dakota, whose views may readily be surmised; former governor Edward F. Dunne of Illinois, long an advocate of government ownership of railroads and public utilities; and Mayor John F. Hylan of New York, generally known as a protege of William Randolph Hearst.

These men are typical of the personnel of the conference. The *Railway Age* can positively identify at least three-quarters of all those who participated as having advocated government ownership ever since they became known to fame.

The conference having been called nominally to consider valuation of railroads, those who made public addresses did occasionally pay to the subject of the meeting the courtesy of referring to it. But almost every man who spoke in the public meetings used the alleged excessive valuation and excessive profits the railroads are trying to secure merely as a ground for advocating government ownership. Mayor Hylan of New York made the first long speech, and delivered a typical socialistic diatribe against private management containing typical socialistic misrepresentations in almost every sentence. William Jennings Bryan, for years an advocate of government ownership, intimated that his faith in government ownership was not so strong as it used to be, but that it is probably the only solution of the railroad problem. G. C. McFarland, a Boston lawyer, and W. C. Lansdon of Kansas, national lecturer of the Farmers' Co-Ooperative and Legislative Union, were among those who expressly advocated government ownership.

It was clearly demonstrated that the real purpose of the so-called "progressives" in recklessly attacking the tentative valuation placed by the Interstate Commerce Commission upon the railways is to advance the cause of government ownership. How is this to be done? The answer is plain. If the valuation placed upon the railways is reduced the net return they are allowed to earn will be reduced. If the net return they are allowed to earn is reduced, they will be unable to raise new capital with which to provide additional facilities of transportation. If they cannot provide additional facilities of transportation, private ownership and management will break down, and government ownership and management will be made unavoidable.

This method of trying to bring about government ownership is far more sound strategically than would be the method of merely advocating government management as superior to private management. The way to make certain its defeat is to make clear to the public exactly what the radicals are trying to accomplish, and the way they are trying to accomplish it, and to convince the public that it is in its own interest to have placed upon the railways a fair valuation, and to let them earn a fair return upon it.

How Labor Leaders Seek "Lower Railway Rates"

ONE OF THE MOST remarkable features of the propaganda which long has been carried on, and is being carried on now, to destroy the ability of the railways to earn reasonable returns for investors in their securities, and thereby to destroy private ownership, is the part that has and is being taken by the leaders and spokesmen of the railway labor organizations. The propaganda now consists largely of efforts to show that the valuation placed upon the railways by the Interstate Commerce Commission and the net return allowed to be earned on it are the principal reasons why railway rates had to be advanced in 1920 and why they cannot be or are not reduced more than they have been since then.

The conference on valuation held by the self-styled "progressives" in Chicago last week was held mainly to promote this propaganda. The personnel of the conference consisted largely of railroad labor leaders. Its principal press agent was Donald R. Richberg, attorney for the shop crafts' unions which struck last summer against a wage decision of the Railroad Labor Board in an effort to interrupt all railroad transportation in the United States, and thereby caused a large increase in railroad operating expenses. Mr. Richberg gave out several statements during the valuation conference intended to show the public that the principal reason why present railway rates are maintained is the valuation placed upon the railways and the net return they are allowed to earn on it.

We do not know how many railway employees endorse the policy being followed by the leaders of their unions in trying to mislead public opinion regarding the real reasons for present railway rates, and to force the railways into government ownership. But every intelligent railway employee ought to know that the return the railways have been allowed to earn for their securities has not been in the past, and is not now, even an important factor in making necessary present railway rates. Every intelligent railway employee knows, or ought to know, that the only reason why higher railway rates have been necessary during the last five years than previously is that the operating expenses and taxes of the railways have increased enormously. The railways in 1916, before any advance whatever in rates was made, earned a net operating income of $1,058,505,501. If they should earn this year 5¾ per cent return upon their valuation, which the Interstate Commerce Commission has held they are entitled to, the net return would be only $1,116,000,000. Since the return the Commission now holds they are entitled to is only very slightly larger than the return they earned seven years ago, before any rates were advanced, it is perfectly evident that the higher rates they are now obliged to charge are due in hardly the slightest degree to the net return they are allowed to earn.

Why, then, must railway rates be higher at present than prior to five years ago? The answer illustrates in a striking way the effrontery displayed by railway labor leaders pretending to represent railway employees in participating in a conference on railroad valuation held for the ostensible purpose of enabling the public to get lower rates. The principal reason why present railway rates are necessary is, as already indicated, that there has been a great increase in operating expenses. The principal causes of these increases in operating expenses have been the advances in wages of railway employees and of employees in the coal mines. In

1917, the year that this country entered the war, the total wages paid to railway employees were $1,740,000,000, and the total amount paid by the railways for fuel was $394,000,000. In 1922, when the total business handled by the railways was much less than in 1917, the total wages paid to employees were $2,669,000,000, or almost $930,000,000, more than five years before. The total amount paid by the railways for fuel in 1922 was $563,300,000, an increase over 1917 of more than $169,000,000. The increases in operating costs due to increases in railway wages and the prices of fuel amounted to over $1,160,000,000.

Now, what did the owners of railway securities get? All they got, directly or indirectly, is represented by the net operating income earned by the railways from which all interest and dividends must be paid, and, directly or indirectly, all improvements must be made. The net operating income earned by the railways in 1917 was $975,000,000, and in 1922 it was only $777,000,000, a reduction of almost $200,000,000.

With the wages paid to railway employees in 1922 $930,000,000 more than five years before, and the return received, directly or indirectly, by investors in the railways almost $200,000,000 less, the leaders of the railway employees' unions have the "nerve" to participate in a meeting held largely for the purpose of making the public believe that the returns the railways are allowed to earn are responsible for the fact that rates higher than those charged five years ago must be maintained!

The result of these changes in operating expenses and in net operating income is that the employees of the railways and those who sell them fuel and supplies are paid much more than formerly in proportion to the service rendered by the railways to the public, while the investors in railways receive much less than formerly in proportion to the service rendered by their properties to the public. In 1917 railway employees received $4.41 in wages for every one thousand tons of freight carried one mile by the railways in serving the public. In 1922 railway employees received $7.90 in wages for every one thousand tons of freight carried one mile by the railways, an increase in five years in railway wages paid in proportion to the freight service rendered of almost 80 per cent. The amount the railways paid for fuel in 1917 for every thousand tons of freight carried one mile was $1.00, while in 1922 it was $1.65, an increase of 65 per cent. In 1917 the net operating income earned by the railways for every one thousand tons of freight carried one mile was $2.48, while in 1922 it was only $2.29.

At the present time many groups of railway employees are seeking increases in their wages, although their wages are now running at the rate of approximately one billion dollars a year more than five years ago. The vast advances in wages made in the past have chiefly made necessary the present rates and further advances in wages will tend to make still higher rates necessary. At the same time that employees are seeking higher wages, the leaders of the labor unions, in a pretended effort to help secure lower rates for the public, are participating in propaganda to prevent the return received by the owners of the railways from being restored to what it was five or six years ago, and even to cause it to be made and kept much less than it was then.

When the men who have secured the vast advances in wages which have been granted to railway employees, including those who called the nation-wide strike last summer against a decision of the Railroad Labor Board, participate so actively in a pretended movement to secure lower rates for the public, the public may well ask what they are really trying to do. The motive and purpose of these labor leaders, and the hypocrisy of their claim that they are acting in the interest of the rate-paying public, are equally evident. They are not seeking, and never have sought, in any way whatever to enable the public to get lower rates. What they are seeking is to destroy private ownership of railroads, because they believe government ownership will serve their selfish purposes better than private ownership. It is a striking evidence of how easily many people are duped that Senators and Congressmen from agricultural states and representatives of organizations composed of and supported by farmers who are seeking lower rates, were seen sitting down and co-operating in the recent "conference on valuation" with railway labor leaders who always have sought and are seeking now ends wholly inimical to the best interest of the farmers.

New Books

Railroad Electrification and the Electric Locomotive. By Arthur J. Manson, Manager Transportation Division, Westinghouse Electric & Manufacturing Company. 332 pages, 6 in. by 9 in. 149 illustrations, 19 tables. Bound in cloth. Published by Simmons-Boardman Publishing Company, 30 Church street, New York.

The increasing cost of fuel and other expenses which make up the railway budget, as well as certain limiting mechanical and operating characteristics of the steam locomotive, have contributed, especially in recent years, to increasing the desirability of adopting electric motive power as the solution for many operating difficulties. While this book is written for the benefit of those who are, or would be most directly concerned with the operation and maintenance of electric locomotives, it contains specific information so arranged as to be of value to anyone in any way concerned with the problems incidental to railroad electrification.

In a brief way, the author touches upon some of the outstanding and most important advantages which may be expected to result from the electrification of existing steam railway facilities, either of an entire system or of certain sections.

Four chapters are devoted to explaining the underlying theory of common electrical phenomena, particularly those which relate to the application of electricity to railway operation. Five chapters are then given over to the explanation of the generally accepted types of motors used to supply power for electric locomotives.

The principles of train operation are discussed and a comparison of the inherent advantages of electric and of steam locomotives is made.

The book contains an explanation of the various means used for accelerating and decelerating electrically operated trains. There are also included descriptions of the air brake equipment and of the methods used for regenerative control. The principal features of electric locomotive design and the design of the transformer equipment are discussed at considerable length.

The last three chapters are devoted to the solution of an actual electrification problem dealing with the factors influencing the choice of an electric locomotive for an installation of a given character.

The book also includes an appendix which reviews briefly the history and salient features of various American electrification projects. Included in this section are 11 tables which show at a glance important characteristics and details of construction as applied to electrical operation of railways in every country where steam railways have been electrified, or where the initial installation was electrically operated.

The book does not discuss intricate technical details, but rather furnishes an outline from which these details can be traced. It does, however, supply a broad view of electrification as it exists today. The information is of such nature and is presented in such a way as to be very valuable to those who are directly engaged in the field of railway electrification and also to those who have only a general interest in the subject.

The Stabilization of Business, by Various Authors. Edited by Professor Lionel D. Edie of Colgate University, with a Foreword by Herbert Hoover. 400 Pages. 5 in. by 8 in. Bound in Cloth. The Macmillan Company, New York.

The effect of the business cycle on the railroad, as on any business with earnings more or less fixed, is profound. In a period of prosperity, with heavy traffic, high wages and high prices for materials, when unregulated industries are making great profits, the railroads dealing with the slow-moving government rate-fixing machinery are not able to make big profits to tide them over a period of depression. When the depression comes and traffic falls off, expenses, particularly wages, cannot generally be immediately reduced and efforts in this direction bring the ill-will of employees and often costly strikes. Meantime shippers are demanding reduced rates which the railroads, not having been able to store up surpluses during good times, can ill afford to grant.

The cyclic variations are a source of disturbance to any business, even those which can take full advantage of prosperous times; their effect on the railroads is entirely harmful.

For this reason we think that this book, which is a serious treatment of the business cycle by eleven eminently qualified students, is worthy of study by every railroad man whose vision reaches beyond the ordinary every-day business of operating his railroad.

The study of the business cycle as it affects the railroad may be subdivided as follows:

1. The study of the business cycles from the point of view of the individual railroad so that far-seeing programs of construction, equipment buying, labor relations and the like may be adopted to enable the railroad to gain what advantage it can from the swing of the business pendulum instead of being hit, as it often is, as it swings in either direction.

2. The study of the causes of the business cycle and its attendant phenomena, the impetus it gives to radical agitation and the methods proposed for lessening its severity or abolishing it entirely.

3. The study of the practical steps which the railroads can take to minimize the intensity of prosperity and depression of general business.

The last phase of the subject, and to some extent the first, have been dealt with in the book by Professor Frank H. Dixon of Princeton University. The railroad as a purchaser of materials and as an employer of labor is so important that the volume of its orders and the number of men it employs have a profound effect on business in general.

Professor Dixon discusses some of the peculiarities of railroads as compared with other businesses: they must operate in times of depression as well as prosperity and cannot shut down service when it becomes temporarily unprofitable; gross annual income represents only from one-third to one-fifth the value of the plant, whereas the gross annual income of a manufacturing enterprise is generally several times the plant value, making it impossible for the railroad to reduce expenses in the face of hard times to the extent possible in other businesses; the greater portion of the investments in railroads have been supplied by bondholders who can foreclose if they do not receive their interest regularly, reducing still further the ability of the railroad to reduce its expenses as income declines.

If the railroads could do their buying and construction work in times of depression, the effect the action would have on ironing out the peaks of prosperity and shallowing the troughs of depression would be important and beneficial. Because, however, of the small annual turnover, the inability to reduce "inventories" and the fixed return demanded by the bondholders, there does not remain enough flexibility to permit of such large-scale planning. "Only large net earnings steadily sustained," says Professor Dixon, "will overcome this disability, and such earnings the railroads have not enjoyed in recent years."

To be able to contribute much to minimizing the intensity of feast and famine, the railroads must have large reserve funds. How are these to be obtained? Wages and rates are fixed by the government. Professor Dixon thinks that there is still an important field for managerial skill in increasing operating efficiency. Co-operative action—some form of car pooling perhaps, co-ordination of terminals, consolidation, working arrangements with highways and waterways, interesting the employees in the efficiency of operation—such activities, he believes, hold forth promises of large savings. If such savings could be made, he says, the problem would be to convince the Interstate Commerce Commission that the accumulation of reserves was legitimate. Otherwise the savings might be dissipated by rate reductions and the railroads would be as far from a position where they could minimize the evil effects of the business cycle as they are now.

Other phases of the problem discussed in this book are: the Problem of Controlling Business Cycles, by Wesley C. Mitchell, director of research of the National Bureau of Economic Research; Stabilizing the Dollar, by Professor Irving Fisher of Yale University; Unemployment-Prevention and Insurance, by Professor John R. Commons of the University of Wisconsin; the Co-ordinating of Production and Marketing, by Professor Lionel D. Edie of Colgate University; International Problems in Business Stability, by Professor E. R. A. Seligman of Columbia University; Public Works as an Agency of Control, by J. B. Andrews, secretary of the American Association for Labor Legislation; the Psychological Factors in Stabilization, by President W. D. Scott of Northwestern University; and the Applied Technique of Stabilization, by H. S. Dennison, president of the Dennison Manufacturing Company.

Professor Fisher's scheme for stabilizing the dollar has gained many advocates in academic and financial circles and it is sufficiently promising to make it worthy of greater popular discussion. Briefly, he would do away with coined gold and have all gold money represented by yellowbacks, each dollar of which would represent drawing power on the federal treasury for a certain weight of gold—not 25.8 grains of gold (.9 fine) as at present—but a weight varying from time to time as conditions changed. He would keep an accurate index on the cost of living and if the cost of living rose (i. e., if the purchasing power of the dollar declined) he would raise the weight of gold exchangeable for the paper dollar, thereby making the dollar more valuable and checking the rise in the cost of living. Conversely, if the index on the cost of living fell (indicating a rise in the purchasing power of the dollar) he would decrease the weight of gold exchangeable for the dollar, thereby making the dollar less valuable in purchasing power and checking the fall in prices. His scheme would not prevent the fluctuation in price of individual commodities but only the price of all commodities in general.

Great prosperity brings high prices and high wages. Debtors who have borrowed money in slack times find it possible to repay their debts with considerable less effort than that represented by the money they borrowed at the time they borrowed it, thus working a real hardship on the creditors. Similarly, in dull times debtors who have borrowed money in times of high prices find they have to part with proportionately more goods and services to pay their debts than they received from the same money at the time it was borrowed. The fluctuating value of money, which accompanies the business cycle, is a constant source of dissatisfaction and discord—now to creditors, now to debtors. The greater part of all labor troubles can be traced to it. It is the great recruiting agent of most radical movements. If business could minimize the intensity of its activity and depression, one of its greatest problems would be solved.

Letters to the Editor

[The RAILWAY AGE *welcomes letters from its readers and especially those containing constructive suggestions for improvements in the railway field. Short letters—about 250 words—are particularly appreciated. The editors do not hold themselves responsible for facts or opinions expressed.]*

The Use of the Traffic Unit

WASHINGTON, D. C.

TO THE EDITOR:

In your issue of April 21, John R. Leighty questions my statement that in comparing the trend of railway revenues and expenses per equivalent ton-mile the same trends would have been shown if a factor of 0, 1, 2, 3, or 4 had been used in converting passenger-miles into ton-miles. In his hypothetical case the variations in passenger-miles from year to year and in the relation of ton-miles to passenger-miles are far from what we find in practice. The passenger-miles are nearer 11 per cent than 33 per cent of the ton-miles. Of course, a variation in the weights will change the figures absolutely and also somewhat relatively, but an actual test shows that if the factor of 3.67 had been changed to 0, it would be substantially correct to say that from 1890 to 1900 there was a fall in both the unit revenue and unit expense, then to 1904 they both increased, but thereafter, until the outbreak of the European war, the unit revenue showed a downward tendency and the unit cost a slight upward tendency, but a very much less rapid one than the upward trend in wholesale prices. The reason for using the factor 3.67, rather than 0 was that it is less confusing to work with unit revenues and expenses that are somewhere near the actual figures.

M. O. LORENZ,
Director, Bureau of Statistics, Interstate Commerce Commission.

Bullinger's "Monitor" Guide and the Other One

NEW YORK CITY.

TO THE EDITOR:

Our attention has been called to a notice, in your issue of April 21, page 1016, of "Bullinger's Guide" [published in Boston, a gazetteer of all railroad stations and post offices in the country].

As our publication, the old established "Bullinger's Monitor Guide" [consisting primarily of passenger train time tables for use in and near New York City] is known in this locality as "Bullinger's Guide" and as we also publish the "Monitor Post Office, Express and Freight Guide," commonly known as the "Yellow Book" (which latter work gives similar information to that contained in this particular edition of Bullinger's Postal and Shippers Guide [the Boston publication], so far as relates to routing directions to all points in the United States and Canada from New York City) we are justified in assuming that your notice is calculated to damage the reputation of our works, owing to the unfortunate similarity in title.

We have no connection whatever with Bullinger's Postal and Shippers Guide, which was sold to the New England Railway Publishing Company, of Boston, in 1920, and is now compiled and published by that concern.

Your just criticism of the Boston publication does not apply to our guide and we should esteem it much if you will compare our shipping directions (compiled in New York) with those given by the guide published in Boston. A most cursory glance will show you the difference between the two guides, and afford ample evidence of the absolute correctness of our work, which has met with the complete approval of both the transportation companies and our patrons.

ARTHUR F. D. COCKBURN,
President, Bullinger's Monitor Guide, Inc.

Limitation of Earnings: An Experiment

BANGOR, Me.

TO THE EDITOR:

Probably no other provision of the Transportation Act has been looked upon so apprehensively as that which seeks to establish the principle of limitation of earnings, certainly a natural attitude toward an untried idea that may be destined to exert an ever increasing influence throughout the business world, freighted as it is with great possibilities for either good or ill, according to the wisdom or lack of it with which such a legal provision may be administered.

Sentiment in favor of some such scheme, especially for application in the operation of monopolistic public utilities, has been rapidly growing during the past few years. The history of numerous rate cases, not only of those connected with railroads but with other public utilities as well, reveals the fact that the courts have often handed down decisions to the effect that rates and tolls to be charged should be such that, when applied to the volume of business handled, will permit of the earning of a fair return upon the value of the property necessary to and used in the production of the requisite service, and it is upon that principle that the provision of the present law is founded.

It is difficult to define "value." The courts recognize this and do not attempt to lay down hard and fast rules to govern its ascertainment. To determine what shall constitute a "fair return" is, perhaps, even more difficult. These are matters which must be considered according to the merits of individual cases. We have not ceased to consider it good business ethics to permit private enterprise to make whatever profit it can, depending upon the law of supply and demand and the keenness of competition to keep profits within a reasonable scope. We have believed the hope of gain to be the necessary stimulus of business activity in a rapidly growing country allowing such a large measure of individual freedom as has prevailed heretofore. Can we now substitute, to large degree, a desire to give in place of the habitual one for getting, thus placing the ideal of service above that of profit as an actuating motive? Whether or not we can succeed in overcoming natural human selfishness to this extent is the vital question.

The bare fact that the earnings of railroads are to be subject to limitation ought to prove a great inspirer of confidence in the public mind. If a man be required to pay a seemingly high price for any service, he will do so with much better grace if he can feel that most of his money is really going to be used in the defraying of necessary and legitimate expenses of carrying on the business which serves him, instead of finding its way into the strong box of some probably already well-to-do stockholder. It is the thought of giving something for nothing that hurts, and that is just what we do when we patronize any business concern that is taking more than a fair profit.

The railway employee ought also to feel encouraged because of this trend of affairs. Why has he been sometimes obliged to work for insufficient wages? The answer as usually given through some labor leader is that it is in order to support the parasitic capitalist in ease and extravagance and, whether true or not, this idea has been the most potent cause,

probably, in promoting discord in the relations of employer and employee. To know that the owner must be satisfied with a fair return upon the value of his property and cannot use it at will as a basis of greedy financial speculation ought to give the employee an assurance of fair dealing that he has in the past sometimes found lacking. Railroad managers may also feel relieved of the necessity of producing, by hook or crook, large earnings for distribution as dividends, since the stockholders may not legally expect anything of the kind.

I am not contending that property valuation will always be absolutely fair, or that a matter of five and three-quarters or six per cent annual return thereupon will always be sufficient or just, but these factors permit of change if and when proved erroneous. We are today witnessing the interesting experiment of taking the operation of a great industry largely out from under control of the recognized economic laws and placing it under that of artificial. Upon the outcome of that experiment depends the future course that governmental regulation of all large basic industries will take. W. A. R.

Civic Duties of Railway Employees

New York City.

To the Editor:

"Bitter enemies of their own employers"; this, in substance, is what you say of many of the railway employees of this country, in your editorial of May 5, page 1084, on the need of a campaign of education. And, sad to say, it is true. Bitterness is easily engendered. A feeling that one's pay is unfairly low will neutralize a large amount of friendly feeling. "Money talks": talks, very often, louder than any other voices.

In your editorial the outstanding point, for immediate attention, it seems to me, is that the people must be educated to see and understand that the encouragement of private enterprise will be to their own interest. Put this in concrete form. It means that I, a railroad employee (or a farmer or a store clerk), shall do the best thing for myself by voting for the same candidate for governor or congressman that the successful business or professional men do. They vote for laws to encourage the capitalist to invest his money in useful business enterprise. I shall do the same if I realize that that is the only way—at least the only normal way—in which a voter can promote useful business; if I realize that only those men who know how to save (and have proved it by actually saving) can be trusted to manage railroads, banks, stores, farms, or anything.

It is futile for me to be jealous of the rich man because he has saved too much. It remains true that he is the best business manager. Assuming that his selfishness is reprehensible, I must still admit that he is the best business manager. If, as a citizen, I want business conducted by the most efficient men, I am a fool to reject those efficient men because I don't like them. Even if a rich and powerful business manager takes too much of the profit for his own share, I must remember that the loss, to me, is without doubt less than it would be if I could put in his place my favorite; for the favorite would in all probability lose more by mistakes.

It is much to be desired that the railroad managers who wish to educate the public could see the wisdom of the old-fashioned patent-medicine almanac. To induce people to accept your claims concerning the virtues of your medicine, give them the testimony of individuals (with name, portrait and date) who have already tested those claims. Mr. A., station agent; Mr. B., conductor; Mr. C., bridge carpenter, regularly vote at each state election what the socialistic reasoners would call the capitalistic ticket. The reasons why these intelligent railroad men vote thus ought to be collated and published. The fundamental issues between these opposing classes of voters have never been properly thrashed out. It would be well worth the cost to employ a half dozen competent specialists to investigate this point, on a railroad employing 10,000 voters, and make a report. It is not likely that any other big business organization will take any action. Unless some railroad acts, nothing will be done.

The far-sighted railroad officer desires to see all of his employees vote to encourage private enterprise in business; not because they are his employees, not because they are thankful for their jobs, not because they do not dare to oppose his wishes; but because to so vote is best for the community, as a whole. Shall we ever get anywhere until this fundamental point is made clear to all who will listen?

In small towns the rich and the poor dwell together peaceably, and both prosper. We have got to find some way to adapt their ways to life in larger places.

The Pennsylvania Railroad has expended considerable sums in educating Italian trackmen in the English tongue, and to become good citizens. In the same general direction there is need—a crying need—of educating native American employees. We natives know something about our civic duties, but not very much. Our knowledge is far in advance of that possessed by most of the Italians, but far below that of the ideal citizen. Let us add to our information; and perhaps at the same time we shall succeed in cultivating our courage. For, unfortunately, we do not always have the grit to vote for a business administration, when we know that it is our duty to do so.

B. Carpenter.

The Plain Teachings of Economic Experience

New York.

To the Editor:

Labor, supported by marked tactical advantages, is not slow in enforcing demands for increased wages. Thanks to renewed demand for manufactured products, coupled with restricted immigration, the floating supply of labor has been greatly reduced. Thus the present condition is unlike that of a year or more ago, when 5,000,000 persons were said to be without steady employment.

The laborer is worthy of his hire, but in view of the adverse effects brought about by the price inflation of 1919 and 1920, which resulted in the buyers' strike of 1921 and 1922, would it not be well for those who direct labor movements to consider the lessons of experience?

It would seem as if psychological rather than economic factors had risen to undue heights in the labor market. Evidently psychological promptings are not to be suppressed, at least not until signs of crimped demand for goods are discerned. Economic trends of the past, especially those flowing from unwholesome inflation, probably will not be heeded at this juncture when so many enterprises are crying for labor.

At the moment the wage factor is powerful, whereas that other important factor, the cost of living, virtually is at rest. It is probable that wages for the more urgently needed crafts have been advanced more than 10 per cent since the present upward movement set in, but retail prices for commodities have ascended only 2 per cent since August, 1922. The current level reflects a decrease of about 30 per cent from the high water mark in 1920.

On the heels of increased wages will come sharp advances in prices, and then the ultimate consumers, including therein those whose compensation has not changed for the better, will find that prices pinch to the point of making buyers wince.

If the price scale works upward to inordinate levels, let us say within the next six to nine months, organized labor will be tapping for further gains because of the necessity of maintaining a so-called standard of living, while the less fortunate workers will be curtailing purchases.

Were productivity increased by increased efficiency, wage demands could be borne, but with jobs rather more numerous than applicants, psychological rather than economic factors dominate. So it is to be assumed that the industrial records are more likely to show evidences of inefficiency rather than indications of giving a dollar's worth of performance for each dollar received as compensation.

If the country is to be saved the unwholesome experiences that were brought about by the inflation of 1919 and 1920, it would seem necessary for employers to put forth some effort to teach the rank and file of their employees that it will be prudent and profitable to keep the unit cost of production from mounting to dizzy heights. Those who have touched shoulders with workingmen know that education, when properly imparted, is readily absorbed by the sober-minded industrial workers. This in turn favorably influences the less steady.

Every employer should make it his business to see that the plain teachings of economic experience are brought before his employees. At the same time the harmfulness of demands that arise from psychological rather than economic conditions should be played up.

Money expended for the purpose of inducing the rank and file to understand that disregard of economic experience inevitably leads to short pickings, will return dividends in the way of increased co-operation and also will deprive agitators of some of their standard ammunition.

J. J. McCABE.

A Remedy for Car Shortage

CHICAGO.

TO THE EDITOR:

Judging by present indications, the railroads will have a hard time getting the bad-order cars down to 5 per cent by October 1. At the first of the year the percentage was 9.5 and it has remained about the same ever since. The more traffic increases, the more cars bad-ordered will increase and the roads can hardly expect to catch up with the work in the months of heaviest business.

If the total number of cars in the country is 2,350,000 and 9 per cent, or 211,500, are in bad order, it would help the situation greatly to reduce the total number of bad orders to 5 per cent or less. This would wipe out the shortage and show a surplus. Under present conditions, the 94,000 cars thus released could earn about $5 a day. Why not turn these cars over to the transportation department and let them gather in the $39,000,000 per month?

A railroad man's reply is that the shopmen's strike put the roads in bad condition and they have not got back on their feet yet. I maintain that the railroads have never been on their feet so far as the car department is concerned and never will be until they realize that it is one of the most important departments on the railroad and not a mere appendage to the locomotive department as it is so often considered.

What are the remedies for the present situation? To start with, car work should be separated from locomotive work and the two departments placed on a par. Very few locomotive men have had the necessary experience to qualify them to handle the car department. Carefully select the man to head the car department, being sure that he is broadminded, a good organizer, a strong believer in system, and understands men. Give him full authority and the necessary tools and equipment. Let him understand thoroughly that the transportation department needs all the rolling stock it can get. Explain to him that when he holds up a car in order to save his department $1, he probably costs the railroad $10. This is done too often at present.

The writer recently visited a car shop and noticed three high-capacity coal cars on which repairs had apparently been finished several days. He spoke to the car man about them and learned that the cars had been ready for service for several days. The reason given for the delay was that it would cost $10 to get them from behind some other cars that were jacked up. During 30 years of service in the car department, the writer has seen many cases of this kind.

At many important repair shops the repair tracks are switched only once or twice a day, whereas they should be switched every two or three hours. As soon as possible after a car is repaired, it should be returned to transportation service. All repair tracks should be spaced far enough apart to allow plenty of room for men and material between the cars. Stub end tracks are to be avoided as far as possible. All bad-order cars should be thoroughly inspected and the repairs classified before the cars are placed on repair tracks. The repair tracks should be numbered and the cars should be placed on tracks to correspond with the classification of defects. The writer knows from experience that where the shop output is 50 or more cars a day, a switch engine in constant attendance will increase the output from 10 to 25 per cent, which means a tremendous saving to the transportation department as well as to the car department.

Rolling stock should be kept up to a high physical standard. Trying to run equipment in poor condition is very expensive. Prior to government control, the El Paso & Southwestern and Florida East Coast, in particular, maintained their equipment to a high physical standard and certainly found it economical. Let the railroads put their house in order and then they can throw a monkey wrench into the machinery of La Follette, Brookhart & Co.

E. F. B.

Highway Taxes Paid by the Railroads

EL PASO, TEXAS.

TO THE EDITOR:

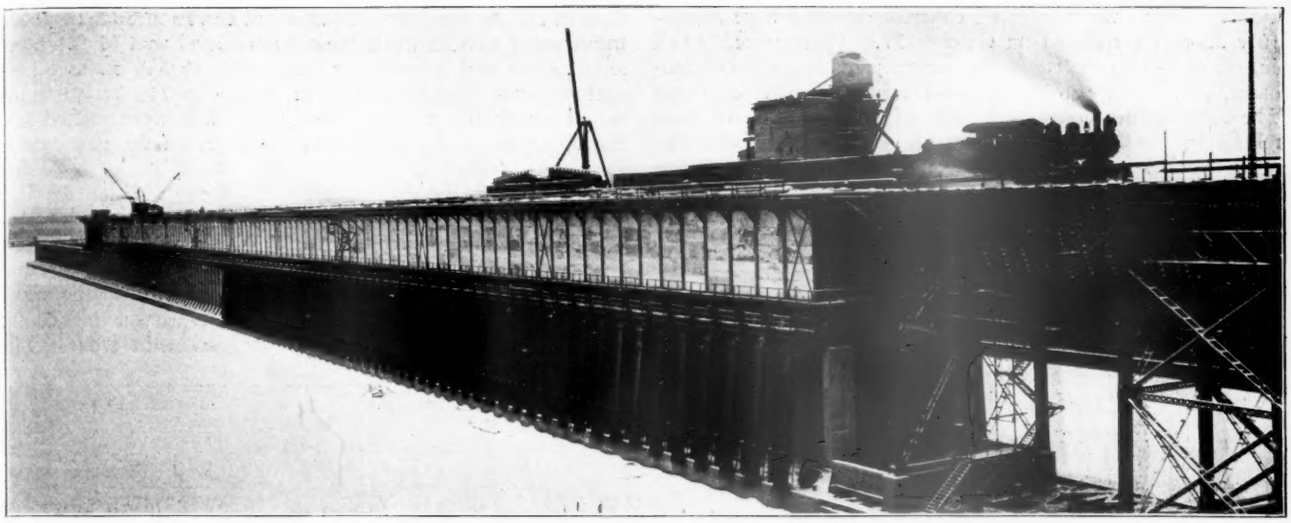
I have noted, with interest, in the *Railway Age* for April 28 (page 1071) an article entitled "A Frank Explanation" in which you again show up the unfair competition of motor trucks on the public highways supported by the taxpayers, among the largest of whom are the railroads.

Your readers will be interested to know that correct views on this subject are spreading. A few days ago an article appeared in the El Paso Times on this same subject, written by a member of the Texas legislature; a hopeful sign, it seems to me. Last year the railways of the United States paid for taxes $304,000,000, much of which went for new highways and maintenance of old ones. The motor trucks were the chief beneficiaries of these highways, and at the same time were the chief destroyers of the roads, while paying therefor a very negligible sum.

No one desires the elimination of the motor truck, but everyone, down to the smallest taxpayer, must desire to see the tax burden properly distributed, to the end that all classes may be justly dealt with.

H. B. HARDING,
Land and Tax Agent, El Paso & S. W. System

[The article referred to is by V. D. Fulger, member of the Texas legislature from Marshall; a strong argument for the enactment in that state of just laws to regulate commercial vehicles. Limitations of space prevent its republication at this time.—EDITOR.]



Progress on February 1, 1923, Showing Substructure Completed and Placing of Pre-Cast Concrete Bin Walls and Steel Spouts

Great Northern Builds New Dock at Superior

Timber Structure Replaced by One of Concrete and Steel Which Embodies Several Innovations

By H. A. Gerst
Assistant Bridge Engineer, Great Northern, St. Paul, Minn.

THE GREAT NORTHERN has just completed and placed in service one of the most modern and up-to-date ore docks at the head of the lakes. This dock, which is known as dock No. 2, is one of four docks owned by this company on Allouez bay in Allouez, a suburb of Superior, Wis. The four docks are separated by slips 200 ft. in width with a dredged working depth of 22 ft. for the safe draft of ore-carrying vessels. The railway assembles the bulk of the Mesabi iron ore it handles by means of transfer engines working between the mines and Kelly Lake yard, from which point road engines transport ore trains about 100 miles to receiving yards at Allouez. The average gross tonnage of these trains is about 7,000 for from 105 to 110 cars of 50 and 75 tons' nominal capacity; 1,000 of the latter now being in service with more on order. The cars are sorted in classification yards and hauled by yard engines onto the docks where they are dumped into the pockets. From these the ore is emptied into vessels moored alongside the docks for movement to lower lake ports and distribution to various furnaces.

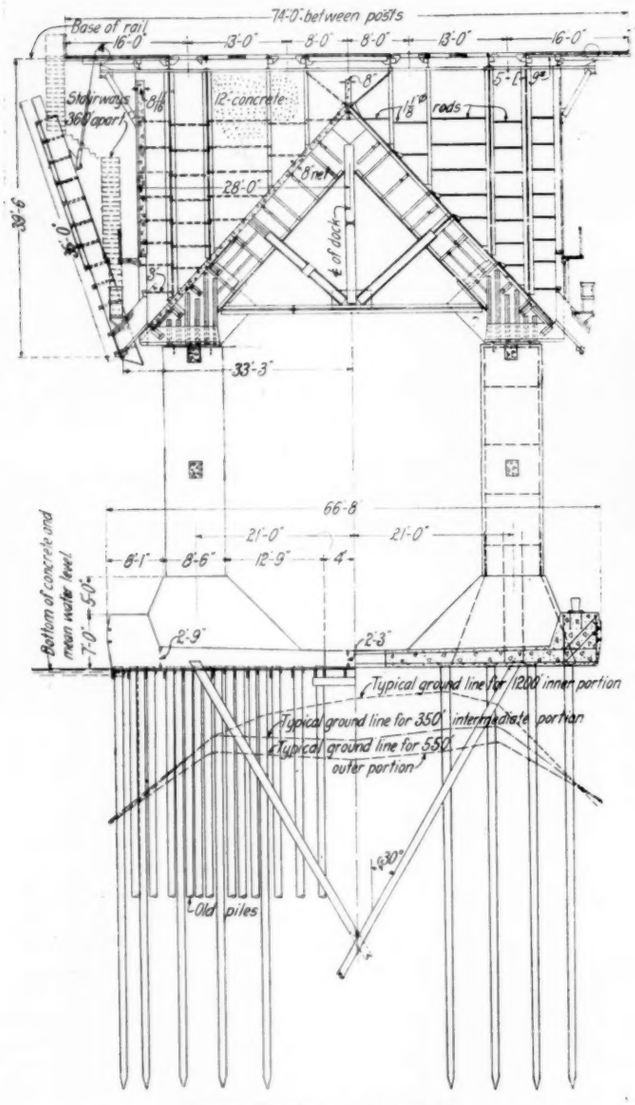
The old timber dock, No. 2, consisting of 350 pockets, built in 1900-02 and heavily repaired in 1910-12, was "carried over" with ordinary running repairs until the close of the 1921 ore season. As it had reached the end of its useful life its replacement was decided upon, and the steel and concrete type was figured to be the most economical. It was also desirable on account of the minimum time required for construction, only one ore season being lost in the replacement despite the magnitude of the work. The wrecking of the old dock was carried out under contract by the Stack Construction Company. Wrecking started on December 6, 1921, and was completed on March 27, 1922. In addition, this company drove 2,742 new plumb foundation piles and 913 new batter piles and pulled and redrove 224 plumb piles and 509 batter piles. The lengths of the piles averaged between 55 ft. and 60 ft. The original piles remaining from the substructure of the old timber dock numbered 13,427 and these were utilized for the foundation of the new steel and concrete dock. Thus a total of 17,815 piles is contained in the substructure of the new dock, including the fenders.

One of the noteworthy features of the new dock foundation is the elimination of the sand-filled cribs used in other permanent docks. One of the drawings shows a typical half-section with the use of batter piles driven at 30 deg. with the vertical. These piles were considered necessary for the purpose of helping to resist lateral forces such as would result from the impact from moving boats in adjacent slips.

Each pocket has a nominal capacity of 350 tons of ore. The assumed data for the calculation of stresses in pocket bottoms, sides and front, and their steel supports were as follows: Weight of ore 160 lb. per cu. ft., angle of repose 45 deg.; track load, Cooper's E-60, plus 50 per cent normal impact on steel track stringers and posts, but no impact on remainder of structure; basic stress in structural steel 18,000 lb. per sq. in. Working stresses were 600 lb. per sq. in. in concrete and 12,000 lb. in reinforcing bars of pocket slabs.

The reinforced concrete substructure for the new 350 pocket dock was built under contract by the Barnett & Record Company and W. F. Hill. Their contract included the cutting off of all foundation piles, which was started April 1, 1922, and completed one month later. A plank grillage was built around the pile heads, for the purpose of affording a bottom for the concrete mattress which followed. The timber grillage was started on April 15 and completed on June 29, 1922. About 516,000 ft. b.m. of lumber was used. The placing of the reinforced concrete mattress was started on June 8 and completed on September 21; fenders and column-bases were started on June 21 and completed on

October 2, and the reinforced concrete columns were started July 25 and completed on October 27. There were 29,115 cu. yd. of 1-2-5 concrete in the mattress, fenders and column-bases, and 9,920 cu. yd. of 1-2-4 concrete in the columns. The substructure contains a total of 1,541,935 lb. of steel reinforcing bars. Coarse aggregate was washed Lake Superior gravel and sand was from the same source. The sand and gravel were brought to the site on scows. The concrete was mixed by means of a one cubic yard capacity mixer

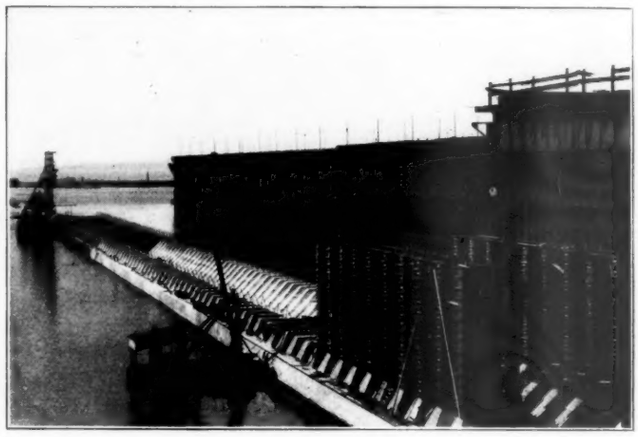


Cross Section of the Dock

on a scow; the latter also supported an elevator tower containing the bucket with spouts from which concrete was poured to the highest part of the columns. Cement was brought in on scows, there being one cement scow, one other service scow and two tugs in use for moving scows.

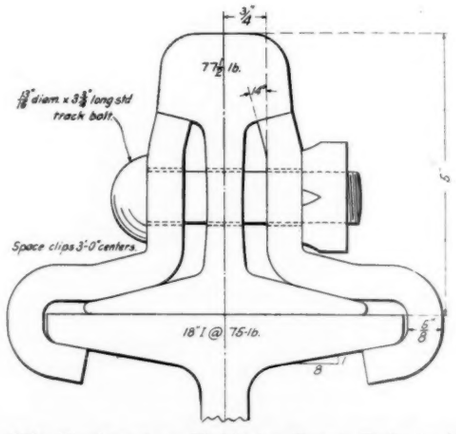
The superstructure erection was carried out under contract by Peppard & Fulton, who commenced the steel work on September 29, 1922. All steel was erected and riveted by April 7, 1923, except the hanging of some ore spouts which were completely hung on April 23. The steel work contractors also raised the existing double track steel viaduct approach, by means of jacking and blocking, a total of 7½ ft. next to the inner end of the dock, the amount of this raise tapering down to nothing near the juncture with the approach to dock No. 1. The raise was necessary on account of the base of rail on the new dock being at elevation 80.5 ft. above mean water surface while the old dock level was 73 ft. Steel shim plates and bolsters for heights up to 3½ ft. and pre-cast concrete blocks from there on up to 7½ ft. were inserted under the viaduct posts after they were jacked up, forming part of the permanent approach on the new grade, the rate of which is 1.04 per cent.

The erection equipment consisted of one stiff-leg derrick, mounted on track rollers with a 60-ft. boom and one locomotive crane, used for placing the members at the front and one stiff-leg derrick with a 100-ft. boom located on the ground for raising structural steel and other materials to the track on the approach where another locomotive crane picked up and fed the parts to the derrick and crane in front. The



View on July 15, 1922, Showing Foundation at Shore End Completed and Forms in Place for First Substructure Units

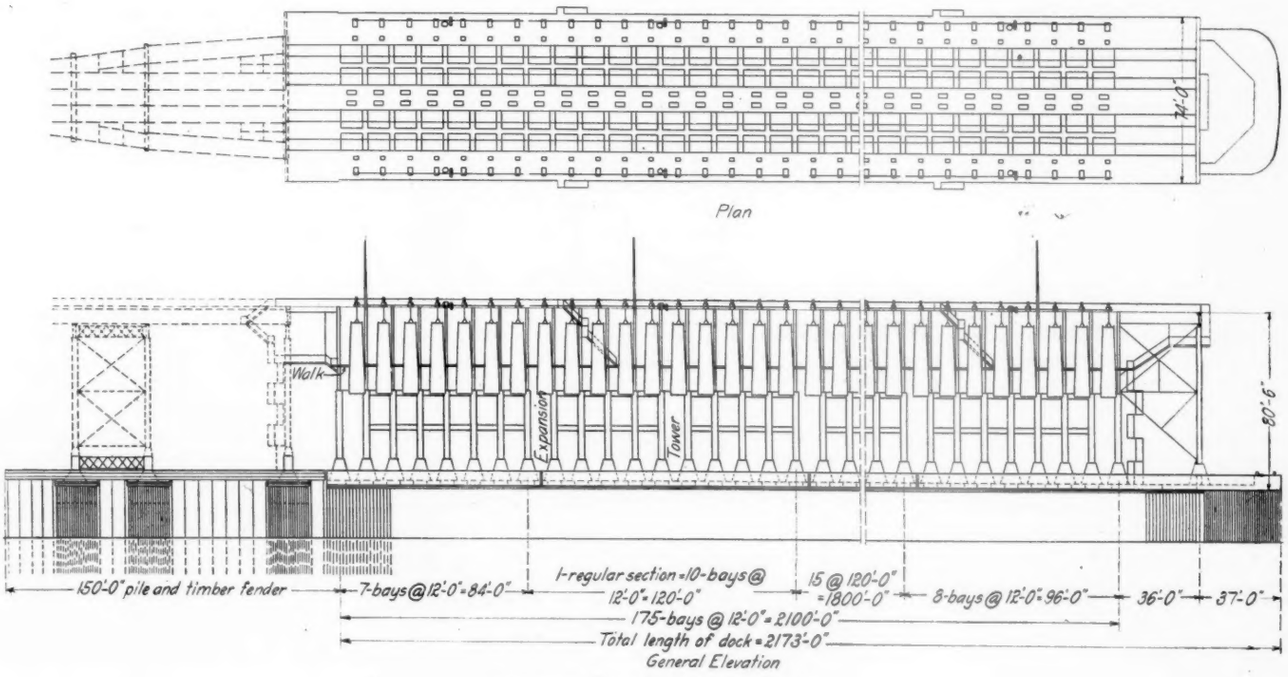
pre-cast reinforced concrete bin fronts and bottoms were placed as fast as possible after the placing of the steel. These slabs were cast in the yards at Superior during the summer of 1922 by Grant Smith & Co., who had the contract for fabricating the pre-cast slabs and viaduct post shim blocks. Bottom slabs were provided with nuts and holes for 1½ in. eye-bolts which permitted their lifting and



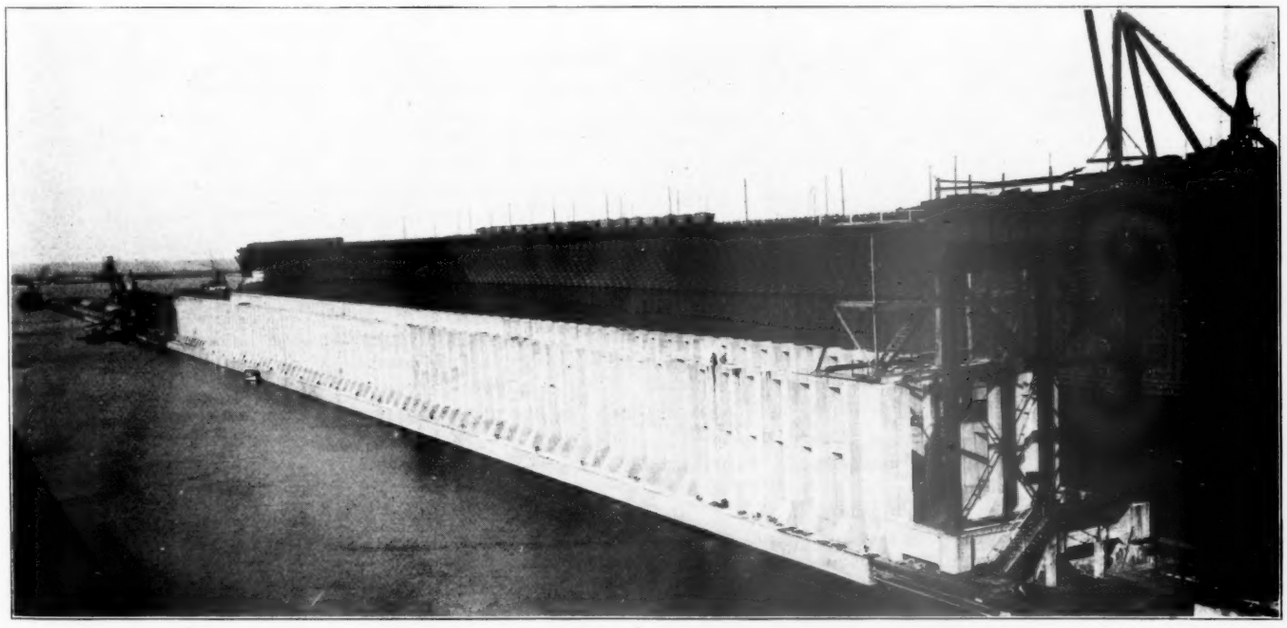
The Clip Designed to Hold the Track Rails in Place

placing. The eye-bolts were then screwed out and reused. Front and ridge slabs were provided with recessed lifting staples for easy handling. The placing of the slabs started on October 29, 1922, and was completed on March 31, 1923, being done by Peppard & Fulton, who also did the work of concreting the 12-in. partition walls and the fillets in the pockets. Pouring of concrete for the partitions started on December 7, 1922, but this work was carried on for only

five days when it was decided to discontinue until more favorable temperatures prevailed. Concreting was resumed on February 26, 1923, and completed on May 1. During this latter stage two 10-hour shifts were employed and an average of six partitions per day were poured. In this work two stiff-leg derricks, each on track rollers, were used for stripping, handling and placing forms; a similar derrick with a clam-shell bucket was used for supplying the crushed rock and sand from cars to the mixer. Cement was hand trucked from cars directly to the mixer. The latter was mounted on two 40-ft. flat cars side by side. Elevator, boom and chutes from this mixing plant deposited the concrete at the top of the partition wall forms. A total of 10,717 cu. yd. of 1-2-4 concrete was poured in the walls and pocket fillets. The coarse aggregate was Duluth trap rock and the sand was from St. Paul. The pre-cast slabs mentioned in the foregoing also were of trap rock, except the front slabs which were of crushed sandstone. The top deck is built of 4 in. fir plank spanning the 12-ft. pockets and fastened to the steel framework and to timber spiking pieces set into the tops of the concrete partition walls. A steel angle iron hand railing was placed along each side and the outer end of the dock as a protection for dock workers. Adequate stairways and walks were placed for convenience in reaching all



Plan and Elevation of the Dock



Condition of Dock on September 30, 1922, Showing Concrete Substructure at Shore End, Ready for Erection of Steel. An Old Dock in Background

parts of the dock without undue delay. The dock is provided with electric lights in each pocket, at the sides and below, as well as with five incandescent lamps on span wires 30 ft. high, every 120 ft. on top.

The Superior Iron Works furnished and installed the 350 spout and door hoist machines. The door hoist is operated by throwing in a clutch on the hoist machine and stops automatically when reaching a predetermined position. Thirty-six General Electric 25 hp. A.C. 3-phase motors were installed; normally 10 hoists were connected by line shafting to a motor, but no more than two spout hoists will be operated simultaneously by the same motor.

Among the novel details in this dock is the provision of forged steel rail clips for fastening the track rails to stringers. This was considered more desirable than riveting or bolting the flanges of stringers to the rail bases as the latter method has, on other dock jobs, required shipping the rails to the bridge shop for riveting to tops of stringers, or else the field drilling of many holes in addition to the riveting or bolting. Another feature is the provision of two lines of 6-in. by 6-in. fir timber bumper strips about 20 ft. long under all ore spout bottoms. These were inserted between the bottom plates and 4-in. by ⅜-in. steel straps. These bumpers were considered essential because it was found that the dropping of the spouts on the edges of vessel hatchways soon bent the bottom steel straps and angles so that the bottom plates were badly dented. These formed high points in the path of the flowing ore and these points were consequently the first to wear so thin as to require repairs in a few years.

The American Bridge Company furnished 22,899,869 lb. of structural steel for this dock. The workmanship and fit were such that no difficulties were experienced in its erection.

Among the operating features worthy of mention on this new dock is the air-hammer equipment for tapping the bottoms and sides of ore cars to loosen the ore, which is sticky at times, especially the washed ore from concentrating plants. Considerable time and expense is saved over the old method of manual tapping with bars.

The first ore was dumped in this dock on May 8, the first boat was loaded on May 11 and the entire structure was turned over for operation on May 15. The construction of the dock, which cost approximately $2,200,000, was carried out under the general direction of A. H. Hogeland, chief engineer. H. J. Seyton, district engineer, supervised the work while C. M. Harris, assistant engineer, was actively in charge of construction. The design, plans and specifications were prepared under the supervision of J. A. Bohland, bridge engineer.

Samuel Rea Explains Stand to Labor Board

PRESIDENT SAMUEL REA of the Pennsylvania appeared personally before the Railroad Labor Board on May 28 to explain the attitude of the Pennsylvania regarding its relations with its employees concerning rules, working conditions and wages. Mr. Rea was accompanied by E. T. Whiter, vice-president of the Northwestern region of the Pennsylvania and E. H. Seneff, general solicitor of the company.

Mr. Rea made it clear that he was not present to negotiate with the Brotherhood of Railway and Steamship Clerks but merely to explain the Pennsylvania's stand, as requested by the Labor Board. He declared that compliance with the Board's decision No. 220, the clerks' union case, would mean repudiation of legal and binding contracts with the Pennsylvania employees, the breaking down of close and increasingly friendly relations which now prevail to a greater degree than at any time since the pre-war days and the abandonment of a policy which bids fair in time to restore a strong sense of duty and loyalty among the men. The company's policy of dealing directly with its employees through employee representatives, has the unanimous approval of the board of directors and of the stockholders of the road, Mr. Rea said, and the policy is working to the mutual benefit of employees and management and is believed to be in the best interests of the public as well. As a result of the plan, Mr. Rea declared, peace exists between the management and the employees and by mutual agreement, a satisfactory means has been established to prevent discord. Under the circumstances, he contended that intervention by the Labor Board in this case becomes in effect subversive to the real purpose of the labor provisions of the Transportation Act, which was to help bring about peaceful relations between the railroads and their employees, and if the company cannot secure the cordial co-operation and assistance of the board in what is believed to be a fair, just and thoroughly democratic plan in spirit and operation, it is constrained to exercise the privilege accorded it under the law to decline to observe the decision.

J. H. Sylvester, second vice grand president of the Brotherhood of Railway and Steamship Clerks, following the introduction of testimony alleging that the Pennsylvania had used coercion in dealing with its employees, declared that "upon the records of this case the management of the Pennsylvania stands convicted of insincerity and utter hypocrisy and a lawlessness that is almost unparalleled in American history. The management could not have shown more clearly its contempt for the government and the people of the United States."

In questioning Mr. Rea and his associates, Chairman Hooper of the Labor Board took the attitude that the Pennsylvania had violated a lawfully rendered decision of the board in the same manner as had the shopcrafts in the strike last summer. Mr. Rea, however, maintained that the Pennsylvania management was justified in ignoring the decision of the board because such action had the approval of its employees.

Additional Wage Increases and Demands

The signalmen employed by seventy-five roads will soon enter into negotiations with the companies for wage increases of 13 cents an hour. The Brotherhood of Railroad Signalmen of America, which represents the employees, is now dealing with the New York Central, the Cleveland, Cincinnati, Chicago & St. Louis, the Michigan Central, the Lehigh Valley, the Boston & Albany, the Lake Erie & Western and the Staten Island Rapid Transit on its demand. Maintenance of way employees on the Louisiana & Arkansas have submitted a plea to the board for increases of 11 cents an hour for foremen; 15 cents an hour for track laborers; 13 cents an hour for shop laborers and 11½ cents an hour for pumpers and drawbridge tenders.

The Southern Pacific is involved in a dispute with its maintenance of way employees in a petition which has been filed with the Labor Board asking increases of from $5 to $10 a month for foremen and assistants and from three to five cents an hour for mechanics, trackmen and crossing watchmen. If granted, the increases will affect 19,372 workers and involve an added annual expenditure of $1,536,000.

The Philadelphia & Reading has granted an increase of three cents an hour to drawbridge tenders and assistants, pile driver and crossing watchmen and an increase of two cents an hour to stationary engineers and boiler room employees. The Chicago, Burlington & Quincy, following negotiations with the Brotherhood of Maintenance of Way Employees and Railway Shop Laborers, granted trackmen an increase of one cent an hour and foremen increases ranging from $2 to $8 per month. Approximately 10,000 employees on the Burlington are affected by the increase.

Hearings on I. C. C. Consolidation Plan

Wide Variation in Opinions Expressed As to New England Lines and Coal Roads

WASHINGTON, D. C.

HEARINGS on the proposed eastern systems in the Interstate Commerce Commission's tentative consolidation plan were resumed before Commissioner Hall and Examiner Healey on May 24 and after the consideration of Systems Nos. 7, 8 and 9, an adjournment was reached on May 25. Hearings have now been held as to all of the systems in the plan and it is understood that this completes the general consideration of the eastern systems, but that further hearings will be held in various cities in the territory as was done in the case of the Southeastern roads and the Western roads following the general hearings in Washington.

Systems No. 7 and 7A

A day and a half was devoted to the consideration of the grouping of the New England lines, which the tentative plan places, with the exception of the Boston & Albany, Rutland and Central Vermont, in System No. 7, including the New York, New Haven & Hartford; New York, Ontario & Western; Central New England; Boston & Maine; Maine Central; Bangor & Aroostook; Lehigh & Hudson River, and Lehigh & New England. An alternative system, No. 7A—New England-Great Lakes, is the same as System No. 7 with the addition of the Delaware & Hudson; Ulster & Delaware; Delaware, Lackawanna & Western; Buffalo, Rochester & Pittsburgh; Pittsburgh & Shawmut, and Pittsburgh, Shawmut & Northern, which otherwise, with the exception of the B. R. & P., may be included in System No. 4, Erie.

Testimony of J. H. Hustis

J. H. Hustis, president of the Boston & Maine, urged that the commission should not foreclose that property from making the best bargain, consistent with the public interest, that it may be able to make by reason of its intrinsic value, but said that it would be to the advantage of the Boston & Maine as well as to the territory it serves if it were affiliated with a strong east and west system. In his opinion, the arguments in favor of a New England system, particularly as it may be expected to solve the financial difficulties, are too indefinite.

The Boston & Maine is seeking no alliance with other railroads, Mr. Hustis said. Its management recognizes, however, that the consolidation of railroads into larger systems than now exist is a necessary and fundamental part of the transportation act.

Mr. Hustis pointed out that the Boston & Maine not only handles more tons than the Union Pacific, Northern Pacific or Frisco, but that it has a higher freight traffic density per mile of line than the Burlington, Santa Fe, Northwestern, Great Northern, Rock Island, Missouri Pacific, Southern Pacific, Northern Pacific, Frisco and Southern. In number of passengers handled and in passenger traffic density, the Boston & Maine leads all of the roads mentioned above. Among Eastern roads it exceeds the Baltimore & Ohio as well as the Big Four and Michigan Central combined in this respect. Its passenger traffic density is nearly double that of the Southern Pacific, over three times that of the Burlington and over five times as great as that of the Great Northern.

If the Boston & Maine were able to earn a return of 5¾ per cent upon even its conservative property investment account, Mr. Hustis said, this return would pay all fixed charges, dividends, and provide a substantial amount for surplus or improvements to the property. During the 3-year "test period," prior to federal control, the earnings of the Boston & Maine were sufficient to pay all interest, preferred dividends, and leave a return of about 4 per cent on the common stock. The earnings of the test period did not reflect the increased divisions of through rates which have recently been granted, nor the increase in local New England rates which was approved by the commission in 1918.

Mr. Hustis also said in part:

As a result of experience obtained from both sides of the Hudson river, I wish to say that, in my judgment, the arguments which have been frequently made for or against the several plans such as "absentee management," "competitive routes," "bargaining power as to rates and divisions," etc., are all much less important than service. By service I mean the ability of the New England railroads to receive promptly from their Western connections freight as it is offered and distribute it with equal promptness, as well as to handle the products of New England. To do these things it is necessary that the roads should be equipped with tracks, yards, engine facilities and locomotives to handle with reasonable dispatch the peak loads that come during certain seasons in each year of normal business. Failure to do this means not only congestion and expense to the railroads within New England but to those without, and perhaps even to a larger degree to the interests which the railroads serve.

The expense because of these situations has been and will continue to be enormous to all interests affected, and it will be repeated from year to year in seasons of heavy traffic until the conditions responsible for it are removed. They have been largely removed in the case of one New England railroad by the only means through which it will be possible for them to be removed by the others. In 1907 the Boston & Albany was unable to receive through its Western gateways in excess of 500 cars per day. For many recent weeks it has handled an average of over 1,100 cars per day from its Western connections. What has been done on the Boston & Albany in the way of improved service would not have been possible without the expenditure of large sums. I might add that these large sums, in my judgment, would not have been forthcoming had the Boston & Albany continued to have been operated as an independent unit.

I am in accord with the suggestions already made in these proceedings, that if a New England system is decided upon, it should be a really inclusive New England system comprising all lines within the territory except, possibly, the Canadian lines in Maine. Only from such a system could the full benefit of the advantages claimed for a New England consolidation be realized. There is a sentimental appeal to the New Englander in the New England plan and it also has its practical appeal, both of which should and, no doubt, will receive consideration. But will it solve the problems which the transportation act is designed to remedy?

However effective such a system would be in maintaining "the existing routes and channels of trade and commerce," and even if the competition of trunk lines for New England business may be assumed to meet the requirements of the act as to the preservation of competition, a New England system would hardly comply with the requirement that "the several systems shall be so arranged that the cost of transportation as between competitive systems and as related to the values of the properties through which the service is rendered shall be the same, so far as practicable."

In his testimony in these proceedings, Mr. Loree, after commenting on the exclusion of certain important lines from the proposed New England system, states "the consolidation into a single system of the remaining New England railways is, however, one of the proposals and as to this it is necessary to observe that the power of such a combination to divert an important volume of traffic at its pleasure from one connection to another would confer an opportunity to extort unfair and excessive divisions which would certainly be utilized and which ought not to be permitted." A similar argument has been advanced by those favorable to a New England consolidation. If it is true that through a combination the New England roads would secure these results, then that is an important consideration in favor of such a plan, but I confess that this has not appealed to me as particularly promising of practical results.

Financial Obstacles

In my judgment, the arguments in favor of a New England system, particularly as it may be expected to solve the financial

difficulties, are too indefinite. In any event, the burden of proof rests with the proponents of the plan to show that it is practical and will solve the transportation problems in New England more effectively than is possible with the present separate properties.

Another alternative plan suggested by the commission is that of a New England-Great Lakes System (No. 7A). One of the advantages claimed for such a plan is that it would provide the New England roads with access to the coal fields. Another is that derived from the inclusion of certain roads of established credit. This plan, however, is merely an extension of the suggested New England system. It includes the Delaware & Hudson, one of our principal connections, to which I shall make further reference in discussing the Trunk Line plan.

The Trunk Line plan as recommended by the commission is that the Boston & Maine should be included in system No. 1—New York Central. Professor Ripley discarded this plan by reason of the size of the present New York Central system. On the other hand, he states: "The baldest proposal is a consolidation of all of these properties (Boston & Maine, Maine Central and Bangor & Aroostook) with the New York Central. The financial advantage is obvious."

My own judgment in the matter is that it would be to the advantage of the Boston & Maine as well as to the territory served by it to be affiliated with a strong east and west system. Whatever economies in management or operation might result from a New England system would be more than offset by economies resulting from an affiliation with a trunk line which would result in a long haul under one management. At the present time the only system answering that description is the New York Central. It is possible, however, that other systems may be built up which would serve the same purpose and avoid some of the objections which have been raised against a combination with the New York Central system.

From the standpoint of the properties represented by Messrs. Loree, Rea and Willard, a union of the Boston & Maine with the New York Central is not appealing. From the standpoint of the Boston & Maine and the territory served by it, however, a consolidation with the Delaware & Hudson as it exists today would not be comparable with the proposed plan of the commission, to unite the Boston & Maine with the New York Central, either from the standpoint of financial strength or from the traffic advantages to be obtained from a combination with any system reaching the Chicago gateway and the Mississippi river, and the intervening territory of the middle west. If, however, the Delaware & Hudson is itself incorporated in a trunk line system covering substantially the same territory, these disadvantages would largely disappear.

Value of Trunk Lines

I am convinced that the Boston & Maine would be of real value to any trunk line system. While it is true that all necessary routes and gateways should be and undoubtedly will be preserved, there would be an inevitable tendency for the controlling line to secure the long haul on traffic to Boston & Maine territory. To retain this long haul, however, it would be necessary to provide service equal, if not superior, in quality to that provided by other existing routes, and so long as the quality of service is maintained, the question of routing should not be of material interest to the shipper.

You have heard the views of those representing the Trunk Lines, and it is apparent from what has been said that the disposition of the New England lines in any plan of consolidation is vital to these interests. To me these are very significant admissions and should receive due weight by the commission in their consideration of the subject. If the Boston & Maine were left free to conduct its own negotiations, I have no doubt that arrangements satisfactory to its owners and of advantage to its users could be made, but that is not permitted under the law except as it may be in harmony with the plan established by the commission.

What the railroads want, or what the Boston & Maine wants, is to have its value recognized in any trade that may be made in the future. For the commission to decree that this or that particular plan must be adopted and rigidly adhered to in those instances where there otherwise would be bargaining possibilities as between several interests might result in serious loss to the owners of the properties affected and indirectly to the territory served.

E. J. Pearson

E. J. Pearson, president of the New York, New Haven & Hartford, indicated a belief that that road might be left as a system by itself, but said that if consolidations must be brought about, there should be a complete consolidation of all the New England railroads except the two Canadian lines in Maine. Parts of his statement follow:

No Trunk Line has indicated a desire to consider absorption of New England roads on a basis with encouragement to the holders of their stock. The Interstate Commerce Commission's tentative valuation indicates a minimum value of the New England roads. Means have been suggested which will again bring about the realization of those values and a fair return upon them. The many holders of railroad securities in New England should be safeguarded, particularly in view of the possibility that through the support and co-operation of every interest, market values can be again restored to a proper level.

The competitive incentive heretofore displayed on the part of the Trunk Lines, to participate in New England traffic, would disappear if one of the Trunk Lines should control in New England. Also it is highly probable that after acquiring control such Trunk Line might so act as to bring about a relocation of industry outside of New England where the net resulting from the handling of the traffic might be a little more attractive. It has been assumed that Trunk Line consolidation would produce the "pocket book" needed by the New England roads, but where is the assurance? Would not their greater interest be found in the industrial development outside of New England, with consequently greater advantages to their traffic elsewhere?

Inflexibility would gradually come about in respect to rates, divisions, etc., other than those confined to the consolidated system. The use by New England of any and all routes, water as well as rail, would almost surely suffer restriction instead of encouragement as now.

It has been assumed that with respect to the New England section of a consolidated system, it could be placed under the requirement to continue to serve the public in all matters as heretofore. If this is the case, it is apparently the thought that the Trunk Line which consolidated with the New England system would forego certain advantages and rights but would assume the financial obligation. Is this reasonable? Should a trunk line, for example, merge the New Haven, is it conceivable that terminal service for the other trunk lines would thereafter receive the same treatment as now? Does the history of railroads bear evidence of such instances of altruism? Is this contemplated by the transportation act?

The operation by the New York Central of the Boston & Albany has been cited as an instance, but in respect to the Boston & Albany, what has happened? The New York Central was obliged to finance large improvements. It was to their advantage to do so, because the Boston & Albany is a main stem of heavy traffic, serving not only populous centers en route, but bringing the New York Central into Boston, and consequently offered many advantages. The Boston & Albany is not loaded with the large proportion of light traffic lines, such as the Boston & Maine and the New Haven; lines which are largely non-productive in net, but which must be continued and operated in the public interest.

The principal traffic centers on the Boston & Albany are also served by the Boston & Maine and the New Haven. It was apparent that under such conditions, the Boston & Albany could be made profitable to the New York Central so far as its individual operation is concerned, as an extension of the New York Central rails to Pittsfield, Westfield, Springfield, Worcester, Framingham and Boston. Enjoying a large degree of prosperity, because of concentration in a heavy traffic main line, the New York Central was able to establish what is substantially an independent management, located in New England and co-operating directly with the people of New England in all matters of joint interest.

Should the Pennsylvania take the New Haven, or the New York Central take the Boston & Maine, it is inconceivable that public opinion in New England would countenance any other less favorable arrangement than an independence of management, with which the people of New England could directly handle their own affairs, and a continuation of the direct relations in this regard heretofore and now existing.

Financial, physical and operating conditions of the Boston & Maine and the New Haven are so entirely different from those of the Boston & Albany that they are not an incentive to a Trunk Line which might effect a consolidation to take a similar and popular course of establishing detached and independent managements; but would the New England public accept any other or less satisfactory course?

One of the important underlying motives in the program for the consolidation of railroads is that of diminishing gateways, unifying terminals, decreasing parallel or duplicating service, and consequently the bringing about of reduction in the costs of operation but without disadvantage to the public. Consideration of each of New England's gateways and of the operation of the carriers both East and West of the same shows very clearly that there are no beneficial prospects of this character with respect to New England; moreover, if a national system of railways should be brought about, it looks to us that the situation in regard to these matters, would be no different after than before.

In no other locality in the United States is there such an important concentration of population and industry. The transactions between the public and the railroads are largely detail and much in excess of those of any other territory. They are essentially

of a character requiring local control and home management. In no other section of the United States is there a locality such as New England within which the property and the operation of the serving carriers is both located and owned within the same geographical boundary; in which the character of transportation is of greater importance; and in which so many of the financial institutions, local to the territory, are so directly and so largely interested. From no viewpoint does it appear that practicable advantages can be brought about through East and West consolidations; from every angle, however, advantages appear from a continuation of home control and the promotion of home support.

Naturally the New Haven system, which should include the New York, Ontario & Western, prefers to continue to work with and to help and be helped by the public whom it serves, and their representatives. The New Haven system is the creation of economic and social forces operating through the last 85 or 90 years. Its growth has been logical. Its service is shaped and operated to the necessities of its patrons. It is home owned. Any consolidation is bound to produce alterations, adjustments and possibly some friction which will disturb and temporarily arrest or divert the development of the transportation facilities. Moreover, the present management has a justifiable pride in proving that its policy of intensive cultivation will bear fruit. To bring back the New Haven system to its former high estate is an ambition worthy of every effort and would entitle all who participate to the highest encomiums of the grateful body of security owners and a well served public.

So far, from the record before the commission, no other system seems anxious to have the New Haven until it has become prosperous, and its management, confident of the future, may be pardoned for not wishing to force an unwilling partnership. In point of mileage, if the routes of the steamship lines be included (and they really are additional tracks of the New Haven system between New York and their respective New England ports), the New Haven system is substantially as large as Professor Ripley's proposed Chesapeake & Ohio system and much larger than his Florida East Coast system. Its operating revenues last year exceeded the operating revenues of 10 of the 21 systems proposed by Professor Ripley, as shown on the basis of 1917. Its population per mile of line is more than three times that of the average in the United States. All in all, it is a system by itself which its management has confidence may be made to earn a fair return upon the value of its property devoted to the service of transportation, and with rates to promote the industries which it serves.

And yet this hearing is to consider the consolidation of railway properties of the United States into a *limited* number of systems. The facts evolved from the experience of federal administration and war conditions, have bred in the public mind an opinion in favor of consolidations.

If this public opinion is to prevail, the New Haven then, in all the circumstances, concludes that a complete consolidation of all of the New England railroads, except the two northern Canadian lines traversing Maine, is one which should if possible be brought about. This New England system should include the following: Bangor & Aroostook, Maine Central, Boston & Maine, Boston & Albany, Central Vermont, Rutland, New Haven, Central New England, New York, Ontario & Western, and their respective leased, operated or controlled rail and water lines.

These lines together form a group performing a distinctive territorial service. They are not substantially competitive with each other. There is but little competition within New England. Such competition as there is between New England lines is substantially between New England points and points outside of New England, and this competition should and can be best promoted and continued, through a consolidated New England system. Such a consolidation will insure to a degree not even now atttained, the freedom of routing to all points beyond New England. In connection with the Ontario and the Rutland, it will afford New England the advantage of possible rail and lake service to Chicago, Duluth and intermediate lake ports. In connection with the Central Vermont, Boston & Maine, and the Rutland, it will preserve Canadian connections. It will keep New England's face to the sea and enable her industries to continue to enjoy the advantage of water transportation to Atlantic and Pacific ports, and to exercise their choice of trading with all the world by sea as well as by land.

There is value enough in the New England lines, as the tentative findings of the commission have already proved, to entitle them to a return which will be appealing to any of their investors. There is business enough in New England to bring that return. There is money enough in New England to finance them. There are brains enough in New England to run its transportation systems and direct their policies.

It is recognized that the lines to be included within a New England regional consolidation as proposed are somewhat different from those proposed in system No. 7—New England, in that it includes the Boston & Albany, the Central Vermont and the Rutland, and excludes the Lehigh & Hudson River and the Lehigh & New England. The Central Vermont and Rutland are essential to the enjoyment of Canadian connections and one of them aids in the development of lake and rail operation. The two latter are only bridge roads which may well be continued under their present management to perform their present functions. They form no part of a New England terminal system. They add nothing of substantial advantage to the New England group, so long as they continue to be operated as at present. Under New England grouping, New England will continue to be supplied through its present gateways and ports, with anthracite and bituminous coal from the many fields competing for its business.

System No. 3 does not commend itself to the New Haven. To restrict New Haven territory largely to the routes afforded by the Baltimore & Ohio, however, efficiently such a system may be managed, would be a mistake, and the New England public would not view with favor any policy which would restrict its complete freedom of routing, by any line beyond the Hudson river.

Our conclusion, therefore, if consolidations must be brought about, is similar in most respects to that reached by Professor Ripley, excepting that it includes some New England roads which he has not included, and excludes two of the lines west of the Hudson which he has included. The reasons which he urges in his able advocacy of a New England consolidation, seem to apply with even greater force to the grouping herein recommended.

A discussion of the financial condition of the New Haven was precipitated by a question as to whether the road could resume dividend payments and thus restore its credit before overcoming a corporate deficit of some $22,000,000. E. G. Buckland, vice-president of the New Haven, stated that when the company's assets are correctly stated there will be a substantial surplus. He said the company has written down several losses but when its valuation is completed many of its properties will be shown to be worth much more than was paid for them and they can be written up. Commissioner Eastman asked if this could be done unless the commission changes its accounting regulations which require a balance sheet to be stated in terms of cost. Mr. Buckland replied that he had no doubt that the obligation of the company is to state the facts and that as this does not involve a regulation of interstate commerce there would be no jurisdiction in the commission to take away or add to the actual value of the property.

Counsel for the New York, Ontario & Western said that company had no suggestion to make or statement to offer at this time. Charles H. Blatchford, general solicitor of the Maine Central, filed the statistical exhibits for that road but said that it had no special statement to make for or against consolidation.

Percy R. Todd

Percy R. Todd, president of the Bangor & Aroostook, summarized the attitude of this company and its local public by stating that they prefer that the Bangor & Aroostook should not be consolidated at present under System No. 1, System No. 7, or any other system, but if consolidation must take place, they believe it to be in the interest of the New England public that such consolidation should take the form of System 7, including or excluding the Boston & Albany, as may ultimately be decided, "which from the standpoint of economical operation of one consolidated New England system should be included, but from the standpoint of the New England public, should perhaps be omitted." He continued:

The Bangor & Aroostook, being by many years the most recently built railroad in New England territory, is naturally in a somewhat different class from the older New England railroads, and not only serves the largest agricultural territory in New England, but is also the only railroad on which material expansion is likely to take place. Therefore it needs special treatment and local management, which it at present receives, and which is illustrated by the fact that while its board of directors consists of 11 members, 8 of these are residents of the state of Maine, and 7 live on the line of the railroad, and are of great assistance as they are local business men, and keep in constant home touch with the requirements of the local public. This close contact and co-operation is absolutely necessary for the development of the country through which the railroad runs, but if the Bangor & Aroostook was consolidated with the Maine Central, Boston &

Maine, and the New York Central System, it will readily be seen that such contact could not be had by a large system which would be equally interested in the potato fields of western New York, Michigan, and to some extent, Wisconsin.

At least two propositions from the public for extension of the company's lines are now before the management, and are held in abeyance only on account of present high cost of construction and the discussion of this consolidation question. None of these possible extensions can be accomplished more effectively under consolidation than under the present individual control, and it is natural to expect that less interest would be given to such extensions if the Bangor & Aroostook were a part of the large system, than under the existing independent management, as the necessities of these extensions would not be so fully understood.

If consolidation with the New York Central System, as proposed in System No. 1, should take place, instead of eight of the directors of the Bangor & Aroostook being residents of the state of Maine, the entire state of Maine would probably not have more than one director; this would not sufficiently represent the public interest in the railroads of Maine, and it is, therefore, the opinion of the management, the board of directors and the public interested, that such consolidation with the New York Central system would not be to the interest of the public of Maine, and to a lesser degree consolidation of the Bangor & Aroostook with the united New England System, No. 7, would also be objectionable. Another point to be considered under System No. 7 is the fact that the Bangor & Aroostook is not only earning and paying 7 per cent of its preferred stock, but also a modest dividend on its common stock, whereas no other railroad in New England (except the Boston & Albany) is paying any dividends. This would make a basis of consolidation, fair to the Bangor & Aroostook stockholders, very difficult, if not impossible, to arrive at. In a lesser degree there might, if deemed in the interest of the public, be no objection ultimately to a consolidation of the Bangor & Aroostook and the Maine Central Railroad. This is the attitude of the management of the Bangor & Aroostook at the present time, bearing in mind that under the transportation act the commission has the power to change or modify whatever plan it may adopt.

I have attended many conferences and have had a great deal of discussion with various public bodies throughout all of New England on this subject of consolidation, and while I find, of course, differences of opinion, I also can state that among the many hundreds with whom I have discussed this question, a large majority would prefer, if there must be a consolidation, a consolidated New England railroad system as against trunk line control of the New England railroads. Indeed, one of the largest financial interests in New England made the statement to me:

"I believe that the day that the trunk lines obtain control of the New England railroads will be the beginning of the end of New England industries."

The Associated Industries of Massachusetts, one of the best and most effective commercial organizations that I know of, has through a committee given much time to the consideration of this consolidation question, and that committee in its report, while recommending a consolidation with the trunk lines, distinctly states that there is no doubt that the majority of New England people would prefer (if any consolidation is necessary) one consolidated New England railroad as against trunk line control, but the committee doubts that the consolidation of the New England railroads into one system could be financed, which view is by no means shared by some of the largest financial interests in New England.

Commissioner Hall asked the witness if he thought the plan should be so formulated as to permit the Bangor & Aroostook to be consolidated with the Maine Central or some other road or whether it should be left out in such a way that it would be foreclosed from an opportunity to be consolidated with some road later. Mr. Todd replied that if there must be consolidations he would be in favor of a New England system with the Bangor & Aroostook left out, but with an understanding that it might come in later. Mr. Hall then said he must have in mind a possible amendment to the law, because as the law now stands if a road were to be left out of a system it could not later cross the lines. Mr. Todd said the road would not like to be placed where it could not be combined with any system. Mr. Hall then pointed out that the commission is directed to get up a complete plan and is seeking a basis on which to determine within what lines and what scope a railroad might be permitted to consolidate if and when other roads come in.

"If the commission is really obliged to place us in some group," said Mr. Todd, "I as a stockholder of the Bangor & Aroostook would prefer to get New York Central or Delaware & Hudson dollars, but from the standpoint of the New England public I think it ought to be put in a New England system."

In reply to questions as to whether a single New England system would comply with the requirement of the law that competition shall be preserved as fully as possible, Mr. Todd said, as Mr. Pearson had, that as to intra-New England traffic there is substantially no competition today except along the line of the Boston & Albany between certain points, and he was not inclined to hold that the Boston & Albany is absolutely necessary to a New England system. E. E. Clark, appearing as counsel for the New York Central, asked if a consolidated New England system would not be able so to divert traffic as to exercise an important control over rates and divisions. Mr. Todd replied that would be the tendency.

System No. 8—Chesapeake & Ohio

Mr. Todd's testimony concluded that on the New England lines and he was followed by W. J. Harahan, president of the Chesapeake & Ohio, who urged that System No. 8 in the tentative plan be made final in the completed plan. This system includes the Chesapeake & Ohio, Hocking Valley and Virginian, whereas Professor Ripley in his report had placed the Virginian with the Norfolk & Western.

W. J. Harahan

Mr. Harahan said:

I believe the consolidation proposed by the commission will achieve the results contemplated in the law in that:

First.—It will fully preserve competition.

Second.—It will not only maintain the existing routes and channels of trade and commerce, but will create additional routes.

Third.—The cost of transportation, including the return on investment, as between the proposed consolidated Chesapeake & Ohio system and other competing systems, will be such as will make it practicable to employ on the Chesapeake & Ohio consolidated system the same rate structures on coal and other commodities as are employed by competing systems.

In arriving at this conclusion I have considered the points made by Professor Ripley in his admirable report, which discloses a vast amount of intelligent study on his part, and I believe that had Professor Ripley had before him the facts which I will now present, he would have reached the conclusion that the Virginian should be included with the Chesapeake & Ohio and not with the Norfolk & Western.

I agree with Professor Ripley as to fundamentals:

First.—That the three railroads based upon Hampton Roads merit consideration by themselves.

Second.—That the peculiarity of these Hampton Roads properties is their specialization in the carriage of bituminous coal and coke. For 1922, these products constituted approximately 75 per cent of the tonnage of the C. & O.—76 per cent of the Norfolk & Western and 89 per cent of the Virginian.

Third.—That the technique of coal-road operation especially "sets off" these properties from those of the trunk lines. It requires highly specialized equipment and methods of operation, which are essentially different from those of other roads.

Fourth.—That there is need of a greater flexibility as between transportation of coal east and west. The surplus coal production above the needs for consumption east and west—for export or the Central West—should be free to find its way more readily in every direction. A freer flow of coal to all possible markets would seem desirable.

Fifth.—That entire freedom of flow will be produced only by the utmost efficiency of the instruments of transportation. This efficiency calls for close co-ordination between barge and vessel movement and car movement. The docks should be owned and operated by the originating road. Movement is interrupted by any shift of operating control en route. Every railroad serving these coal fields should have outlets over its own rails east and west to lake or tide, and the prime purpose of his recommendation is to accomplish this end.

Sixth.—That the Virginian Railway, serving only the smokeless field with a market exclusively at tide, most urgently needs an outlet to the West.

Seventh.—That there should be at least two lines between tidewater and the lakes in order that competition may be preserved.

I feel that there are especially strong reasons why, in the interests of the public, the tentative plan of the commission,

providing for the inclusion of the Virginian Railway in the C. & O. system, should be sustained.

The Chesapeake & Ohio can make any improvements for the purpose of reducing operating costs, like electrification, if that proves more economical, or any thing else that the Norfolk & Western can make. The Chesapeake & Ohio and Virginian railways have extensive joint facilities and joint operating arrangements in the New River field. Each has trackage rights over certain lines owned by the other which afford access to certain joint mines. In order to avoid duplication of service to such joint mines, operating arrangements have been made under which the service to each joint mine is performed by the owning road for itself and the other road. Under this arrangement the road performing the service receives the empty cars of the other road and places them, as well as its own cars, at the joint mines according to the shipper's orders. If the Chesapeake & Ohio and Virginian are consolidated it will very greatly decrease the switching that they now perform, even under these favorable conditions, thereby materially lessening the cost of operation, whereas, if the Norfolk & Western acquire the Virginian the same practice will necessarily continue.

While it is true that the Chesapeake & Ohio is, as Professor Ripley states, a highly specialized coal carrier, nevertheless it is also a carrier of commercial freight in considerable quantities. The 1922 annual report shows that of its gross freight revenue 40 per cent was derived from the carriage of commodities other than coal and coke, and it is in a position to handle a large commercial business.

In addition to this fact the Chesapeake & Ohio, in connection with the Virginian, will open up a practicable competitive line under one management between Roanoke and Richmond, Roanoke and Washington, and intermediate points.

If the Virginian is allocated to the Norfolk & Western and the Pennsylvania control of the Norfolk & Western continues, it will mean that that railroad, through its control of the Norfolk & Western, and of the Virginian and of its New York, Philadelphia & Norfolk line will practically monopolize the situation at the port of Norfolk in so far as east and westbound traffic is concerned. In view of the Pennsylvania's interest in the northern ports of New York, Philadelphia and Baltimore, it is clearly in the interest of the public that there should be another strong competing trunk line serving Norfolk from the West with its own rails. This can only be brought about by the allocation of the Virginian to the C. & O.

To enable the C. & O.-Virginian system to serve the situation in the most efficient and economical manner, the C. & O. proposes to acquire or build a connection between the C. & O. and the Virginian near Lynchburg. The present main line connection of the C. & O. with the Virginian is at Deepwater, W. Va. The Virginian from the point of connection with this proposed new line to Norfolk is in excellent condition. It has splendid facilities which can be extended to adequately meet all traffic requirements. The Chesapeake & Ohio from Deepwater to this proposed connection has a double track line of railway, or its equivalent, with the lowest grades over the mountains, and is equipped to handle more business than the Virginian can between the same points.

To fully utilize the advantages possessed by the present C. & O. line to Lynchburg and avoid the disadvantages of the present Virginian line west of Elmore and leave the Virginian west of Roanoke free to handle a maximum of coal traffic, it is essential that this connection be obtained. This would give the route the benefit of a line capable of handling merchandise trains with dispatch all the way from Chicago, Toledo and other western points into Norfolk.

By making the C. & O.-Virginian consolidation, the rate of return on the combined investment in road and equipment will be substantially the same as is the present rate of return for the Chesapeake & Ohio. With the added economies which would follow the establishment of the C. & O. consolidated system, considering the construction of the new lines hereinafter mentioned, the rate of return of this combined line should be approximately the same as the present rate of return of the Norfolk & Western.

If the Virginian Railway should ask this commission today, under the existing law, to allow it to extend into the New River field, paralleling and duplicating the facilities of the Chesapeake & Ohio, I do not believe that the commission would grant its consent, because of the economic waste involved in such paralleling and duplicating. Allowing the Norfolk & Western to take over the Virginian practically extends the Norfolk & Western into C. & O. territory and perpetuates this economic waste and makes possible a vast increase of this economic waste.

The C. & O. needs additional eastbound business to insure the most economical operation of its railroad. The Norfolk & Western now has a preponderance of eastbound coal tonnage. The combination of the Virginian and C. & O. eastbound tonnage to tidewater, based on the average tons dumped per annum for the eight years 1915 to 1922, inclusive, would give that combined system 8,906,000 tons, while the combination of the Virginian and Norfolk & Western tidewater tonnage would give to that system 11,439,000 tons. The Chesapeake & Ohio's average was 4,643,000 tons.

Taking the eastbound situation as a whole, for the year 1920, which is the last year for which we have figures for all lines, if the Virginian tonnage was added to the Norfolk & Western eastbound tonnage it would give that combination a total of 23,600,000 tons. If, on the other hand, the Virginian tonnage was added to the Chesapeake & Ohio tonnage handled in that same year, it would give that combination 18,600,000 tons as against the Norfolk & Western's actual tonnage for that year of 16,480,000 tons. If the C. & O. does not obtain this Virginian tonnage it would have only 11,400,000 tons as compared with 23,600,000 tons for the N. & W.

If a combination is made between the Norfolk & Western and Virginian, it will have five modern coal piers at Hampton Roads and the C. & O. will have one. This would require the building of large additional facilities by the C. & O. to meet this competition. If the C. & O. acquired the Virginian the number of piers and facilities would be equalized as between the two systems.

Your attention is especially called to the fact that getting the Norfolk & Western to the lakes has no relation whatever to its consolidation with the Virginian; that the Virginian can be gotten to the West without any consolidation with the Norfolk & Western, and, by consolidation with the Chesapeake & Ohio it can be given the western outlet at a far cheaper cost than is possible with the Norfolk & Western.

The combination of the Virginian with the C. & O. will undoubtedly bring about larger operating economies than is possible if combined with the Norfolk & Western. The situation alluded to by Professor Ripley can be taken care of and the Norfolk & Western allowed exactly the same use of the Virginian as under federal control, without detriment to the Chesapeake & Ohio's use of the Virginian, by means of a trackage right, thus realizing the large savings shown in the coal fields by the C. & O.-Virginian combination, and also the saving, if any, that could be obtained by the Norfolk & Western in the joint use above suggested. We will be glad to co-operate with them and work out an equitable arrangement so that such operating economies can be obtained by the Norfolk & Western. In addition, the C. & O.-Virginian combination will preserve a great deal of competition in the coal fields, at Norfolk and along the line of the Virginian, which will be eliminated if the Norfolk & Western acquires the Virginian.

For the reasons stated I strongly feel that the tentative report of the commission with respect to System No. 8—the Chesapeake & Ohio—should be made final.

Your attention is called to the testimony given by the New York, Chicago & St. Louis, System 5, with reference to the consolidation of systems 4, 5 and 8. It is the belief of the Chesapeake & Ohio that its ability to serve the public would be materially enhanced by such consolidation as suggested and it strongly concurs in the testimony given by the Nickel Plate in this regard. The benefits that would accrue to the Chesapeake & Ohio will be the obtaining by that system of the greater outlet for its freight, including coal and all other commodities and it will particularly give it an increased outlet for the merchandise and other commodities necessary to build up the ports of Newport News and Norfolk. It would make a similar group to that which would be made if the Pennsylvania and Norfolk & Western consolidate, as suggested in the testimony of the Pennsylvania.

C. W. Huntington, president of the Virginian, said that that company would prefer not to be grouped with the Chesapeake & Ohio but would rather be linked up with the Norfolk & Western or the New York Central. To make a workable C. & O.-Virginian line, he said, would require a considerable amount of new construction because the present point of interchange at Deepwater is very unsatisfactory.

N. D. Maher

N. D. Maher, president of the Norfolk & Western, testified as to System No. 9, which includes the Norfolk & Western, with the exception of two of its branches, the Toledo & Ohio Central, Zanesville & Western, Kanawha & Michigan and Kanawha & West Virginia. He expressed the opinion that the present system should be left intact and that the Virginian should be added to it, although he also sug-

gested an operating union with the Pennsylvania. He said in part:

The commission's tentative plan creates a Norfolk & Western system cutting off our North Carolina lines and adding the Toledo & Ohio Central with subsidiaries, mainly as a lake connection for Norfolk from Columbus to Toledo. This railroad is not suited for Norfolk's coal tonnages either as to line or grade and would have to be rebuilt in part and new dock facilities constructed at the lake. This expense would seem an unnecessary tax upon the public service because the Pennsylvania's line, Columbus to Sandusky, has been reconstructed, partly double-tracked, and fitted, in advance of the needs of the Pennsylvania System's own traffic, to carry this coal tonnage of the Norfolk to the lake. The waste would be dual from another viewpoint because a transfer of the Norfolk's business to some other line would render in part useless the expensive improvements made by the Pennsylvania. Attaching to the Norfolk system the Pennsylvania line from Columbus to Sandusky would not solve the problem because the Pennsylvania requires that line for access via Carrothers to Toledo and Detroit, an important part of the public service rendered by the Pennsylvania system.

In 20 years the Norfolk's coal tonnage has grown from 6,000,000 tons to 30,000,000. Existing competition and channels of trade in coal and other commodities will be preserved, in my opinion, by an operating union of Norfolk with Pennsylvania or by continuing the existing Norfolk system independently as Norfolk & Western. The Norfolk & Western, as the commission's tentative plan contemplates, can be continued as an effective operating system already developed for appropriate public service along lines of economic demand with existing adequate connections to the lake and Chicago and the North Carolina lines to the South and Southeast already developed. The main line mileage with the important feeder branches creating traffic and for distribution of originated coal makes on the whole a very effective system for service and for economy. The main line from Norfolk to Columbus is 707 miles and the total mileage of the system is 2,222.28 miles.

Leaving the Norfolk system intact, and adding the Virginian only to that system seems to be the solution which will fulfill the conditions imposed upon consolidation by the law, that competition shall be preserved as fully as possible and that wherever practicable existing routes and channels of trade and commerce shall be maintained.

The Virginian Railway in independent operation is an eastern line only, with terminals on the same side of the river and adjacent to the Norfolk & Western terminals in Hampton Roads. The Virginian parallels the Norfolk & Western, practically from the coal fields to tidewater, and can be used in common with the Norfolk & Western to facilitate the movement and to increase the business handled. During the War as regional director I turned the east-bound tidewater coal movement of the Norfolk & Western onto the Virginian at Roanoke and moved it on that line to escape the Blue Ridge summit and grade on the Norfolk & Western, running the Virginian westbound movement over the Norfolk & Western during the same period. The lines were thus used in common for about one hundred miles. In case of a disaster or interference with the traffic, these lines can be used as detour lines to the advantage of both. The Virginian Railway taps the same sort of coal—low volatile and high volatile coals—as the Norfolk & Western. Therefore, as necessity arises, coal can be exchanged at a junction point within six miles of the docks of both lines at Norfolk. I did this several times during federal control for short periods.

Prof. Ripley's recommendation was to combine Virginian with Norfolk "in order to afford a western outlet for coal originating on the Virginian." This was doubtless in addition to the important mutual operating advantages to patrons and the two railways which I have emphasized. But the commission rejected this joinder of the Virginian to the Norfolk system.

At a previous hearing I have discussed Professor Ripley's proposal to sever the North Carolina lines of the Norfolk system, and I need not here repeat the considerations which seemed to me of weighty import against severance.

Several times when witnesses expressed the opinion that their lines should be left independent, Commissioner Hall asked whether by such statements they meant to indicate that the consolidation plan should be so prepared that they would thereafter be barred from consolidating under the law, or whether they were making the statement because they had in mind a possible change in the law to make the proposed grouping compulsory. After Mr. Hall had thus indicated that it might become difficult for a road to combine with another road later if the combination were not provided for in the plan, the witness generally expressed an opinion as to what system it might well be grouped with.

Freight Car Loading

WASHINGTON, D. C.

REVENUE FREIGHT CAR LOADING during the week ended May 19 showed an increase of 17,000 cars over the previous week, making the total 991,797, or within 3 per cent of the highest record ever made even in the fall season. This was an increase of 210,844 as compared with the corresponding week of last year and 220,806 as compared with 1921. Car loading has never before reached such a figure before the month of August. In 1920 this figure was exceeded during the week of August 26 and in 1918 not until the week of September 23. Increases as compared with the corresponding week of last year were shown in all classes of commodities except grain and grain products and increases as compared with the previous week were shown in all classes except miscellaneous, which showed a decrease of about 4,000 cars.

REVENUE RFEIGHT LOADED

SUMMARY—ALL DISTRICTS, COMPARISON OF TOTALS THIS YEAR, LAST YEAR, TWO YEARS AGO. WEEK ENDED SATURDAY, MAY 19, 1923

Districts	Year	Grain and grain products	Live stock	Coal	Coke	Forest products	Ore	Mdse. L.C.L.	Miscellaneous	Total revenue freight loaded	Corresponding period	
										1923	1922	1921
Eastern	1923	8,722	3,454	54,705	3,957	6,341	7,703	67,385	96,886	249,153	.....	.....
	1922	9,572	2,719	8,743	1,418	5,853	2,940	69,641	84,888	.....	185,774	189,947
Allegheny	1923	2,150	2,525	56,437	7,820	3,709	13,376	49,235	87,223	222,475	.....	.....
	1922	2,285	2,306	13,481	4,654	3,103	2,355	51,180	69,098	.....	148,462	160,489
Pocahontas	1923	176	101	24,808	517	2,141	389	6,634	4,891	39,657	.....	.....
	1922	182	90	28,447	883	1,338	34	6,133	4,079	.....	41,186	34,562
Southern	1923	3,403	2,258	21,588	1,368	24,148	1,668	39,091	41,657	135,181	.....	.....
	1922	3,086	2,172	21,687	709	19,250	915	37,834	38,814	.....	124,467	110,824
Northwestern	1923	8,010	8,097	6,557	1,174	20,980	40,677	31,594	37,592	154,681	.....	.....
	1922	11,197	7,728	3,424	1,296	18,116	8,162	30,358	33,258	.....	113,539	109,721
Central Western	1923	7,813	12,001	13,480	486	12,610	2,857	35,465	49,832	134,544	.....	.....
	1922	12,352	11,019	3,604	219	6,785	1,947	34,101	45,794	.....	115,821	105,562
Southwestern	1923	3,532	2,838	4,024	148	7,724	387	14,921	22,532	56,106	.....	.....
	1922	4,920	2,420	2,070	130	6,729	278	14,106	21,951	.....	51,704	59,886
Total West. districts	1923	19,355	22,936	24,061	1,808	41,314	43,921	81,980	109,956	345,331	.....	.....
	1922	27,569	21,167	9,098	1,645	31,630	10,387	78,565	101,003	.....	281,064	275,169
Total, all roads	1923	33,806	31,274	181,599	15,470	77,653	67,057	244,325	340,613	991,797	.....	.....
	1922	42,694	28,454	81,456	9,309	61,174	16,631	243,353	297,882	.....	780,953	.....
	1921	37,823	26,747	160,632	5,503	49,388	29,830	217,174	243,894	.....	.....	770,991
Increase compared	1922	.....	2,820	100,143	6,161	16,479	50,426	972	42,731	210,844	.....	.....
Decrease compared	1922	8,888	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Increase compared	1921	.....	4,527	20,967	9,967	28,265	37,227	27,151	96,719	220,806	.....	.....
Increase compared	1921	4,017	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
May 19	1923	33,806	31,274	181,599	15,470	77,653	67,057	244,325	340,613	991,797	780,953	770,991
May 12	1923	31,997	29,689	175,158	15,302	74,424	59,619	243,544	344,798	974,531	767,094	751,186
May 5	1923	34,097	33,508	175,866	15,100	72,154	37,943	240,845	351,516	961,029	747,200	721,722
April 28	1923	36,922	31,703	180,127	15,729	77,255	24,135	241,388	350,435	963,694	751,111	721,084
April 21	1923	38,125	33,317	179,762	16,010	80,140	19,903	238,520	351,966	957,743	706,137	704,632

Hearing on Adequacy of Cars and Locomotives

Definite Progress Reported on A. R. A. Program—Details Given of $1,500,000,000 Expenditure

WASHINGTON, D. C.

DEFINITE PROGRESS has already been made by the railroads in carrying out the program to provide adequate transportation service in 1923 to meet the anticipated increase in freight traffic, unanimously adopted at a meeting of the carriers in New York in April, and there is every reason to believe that it will be met without difficulty, R. H. Aishton, president of the American Railway Association, told the Interstate Commerce Commission on May 28.

Mr. Aishton appeared as the first witness for the carriers in connection with the investigation started by the Interstate Commerce Commission as to the adequacy of locomotives and cars owned by the railroads.

Despite the fact that more cars are now being loaded with revenue freight than ever before in history for this time of year, the car shortage has been steadily reduced until now it has practically disappeared, Mr. Aishton said. From January 1 until May 12 inclusive, 17,029,946 cars have been loaded with revenue freight compared with 14,278,847 during the corresponding period last year, and 13,311,555 during the same period in 1921. Freight loading for the week of May 12 was within approximately 4 per cent of the greatest loading for any one week in history.

"While the railroads," said Mr. Aishton, "have been accomplishing this heavy loading, they have at the same time been bringing about a substantial relocation of closed equipment to the west and northwest in anticipation of the crop movement this fall, and a substantial relocation of open top equipment from the west to the east, correcting the dislocation due to bad weather conditions during the winter and to the movement of coal by abnormal routes, as a result of the coal strike. They have also increased the number of stored serviceable locomotives from 576 on January 1 to 1,326 on May 1.

"One difficulty confronting the railroads at this moment and not peculiar to the transportation industry, but common to all industries, is a shortage of labor. Accompanying this and reflecting the shortage of labor reported generally in other industry, there is a slowing up in deliveries of material necessary for the maintenance and operation of the railroads. Notwithstanding this and other handicaps the railroads have confidence that the 'Program to Provide Adequate Transportation Service in 1923' will be met and that other conditions being normal the interruptions and annoyances in the movement of traffic brought about by abnormal conditions prevailing in the past twelve months will be in a large measure overcome.

"Failing to reach perfection has not necessarily been due to lack of efficiency on the part of the railroads or to lack of authority in the car service organization. Two outstanding situations occurred. The first was in 1920, when the Interstate Commerce Commission was requested to exercise its authority under the transportation act at the time of the strike of the outlaw switchmen, which materially and adversely affected transportation for several months. The second was in 1922 when a somewhat similar condition occurred due to the longest and most acute stoppage of coal production ever experienced in this country, caused by the miners' strike, coupled with a nation-wide strike of railway shopmen, the first nation-wide transportation strike ever occurring and which adversely affected the condition of locomotives and cars and reduced the number available for the conduct of transportation, and by its effect on ability to produce railroad transportation made it impossible either for rules to operate properly or for orders of any character to create power to perform service. To put it another way, these major car shortages that have occurred were preceded and caused by major labor disturbances which made it difficult, if not impossible, to provide all transportation demanded, and this was responsible for the resulting condition, rather than any deficiencies in the rules or methods for car handling. It should not be forgotten, however, that notwithstanding these great difficulties an enormous volume of traffic was handled by the railroads during these periods."

Mr. Aishton explained the provisions of the railroad program as agreed on in New York, which calls for not only a speeding up in the loading and unloading, as well as the movement of freight cars, but also that the number of locomotives in need of heavy repairs to be reduced to 15 per cent of the number owned by October 1 next, and that the number of freight cars in need of repairs be reduced to 5 per cent of the total within the same period.

The program, Mr. Aishton said, also calls upon the carriers to complete by September 1 the storage of coal needed for railroad operation, and for every effort to be made to induce consumers, wholesalers and retailers to lay in as much as possible of their coal supply during the summer months.

Mr. Aishton testified that on May 1 this year the number of locomotives in need of heavy repairs had been reduced to 19.4 per cent, while at the same time the number of freight cars awaiting repairs had been reduced to 9.2 per cent.

Reports also showed that up to May 14 last, 2,505,738 tons of coal had been dumped at Lake Erie ports for shipment by water up the lakes compared with 1,397,368 tons last year; 2,692,669 in 1921, and 864,523 tons in 1920.

Mr. Aishton said that the railroads from January 1, 1922, to May 1, 1923, purchased 252,257 new freight cars, of which 136,501 have already been delivered, while on May 1, a total of 115,756 were on order. From March 15, 1923, to May 1, 28,613 cars have been ordered. During the 16 months' period from January 1, 1922, to May 1, 1923, the railroads purchased 4,463 new locomotives, of which 2,607 have already been installed, while 1,956 were on order on May 1.

When Mr. Aishton called attention to the fact that the estimate of car loading for the balance of the year submitted by the Car Service Division to the American Railway Association at the meeting in New York in April was conservative, as indicated by the fact that the actual loading has shown a large increase over what was predicted, Commissioner Aitchison asked whether this did not indicate that the estimate was placed too low. Mr. Aishton replied that the question was speculative and that if there is a marked falling off in building operations the large increases in loading may not keep up. Mr. Aishton said that no figures are available to show what the retirements of equipment will amount to for the remainder of 1923 but that a considerable number of the cars to be retired have not seen active service for some time so that new equipment will largely represent added ability to increase transportation.

The success in carrying out the early movement of lake coal, Mr. Aishton said, will depend in a very large measure on the purchasing activity of the consumers in the northwest.

Commissioner Aitchison asked if there is not usually a good deal of car shortage in the country when the surplus falls below 100,000 cars and if that much of a surplus is not required as a sort of "working capital." Mr. Aishton replied that the railroads are now loading nearly 1,000,000

cars a week and that so far as he knew there is very little complaint of car shortage. He also said that the reports of car shortage today in themselves do not represent accurately the situation, but that they are cumulative to a certain extent in that they do not represent the actual ability to load daily. It is the purpose of the railroads to study this matter with the view of eliminating inflation of car orders—"to get the water out."

Commissioner Potter asked Mr. Aishton what he thought would be the effect on the price of coal and on the number of coal mines in operation if the railroads for a considerable period should furnish enough cars to handle 15,000,000 tons of coal a week. He said he would like to have the question gone into as to whether this would not so flood the market and reduce the price of coal as to limit the market to the most efficient producers and weed out the others. Mr. Aishton promised to submit a discussion of the question later, but said that to handle 15,000,000 tons a week would require a very great readjustment of railroad facilities and terminals for a short period.

Expenditures for Improvements

Figures showing the expenditures for improvements made by the railroads in 1922 and authorized for 1923 were put in the record by Julius H. Parmelee, director of the Bureau of Railway Economics.

In connection with the effort of the railways to bring about every possible increase in railway facilities, and also to ascertain the facts regarding such increase, the Bureau of Railway Economics in March was requested by the chairman of the executive committee of the Association of Railway Executives and the president of the American Railway Association to circularize the railways of Class I, asking them to report to the Bureau:

First, the amount of money expended in 1922 for additions and improvements to their properties, and

Second, the amount already authorized for similar purposes in 1923, so far as authorizations had been made, down to about the first of April.

The circular letter stated that the information was being called for "to indicate what the railways are doing to improve transportation conditions." In all, the request was made on 152 companies or systems, operating 234,155 miles of line. Replies have been received from 143 companies or systems, operating 227,199 miles of line, leaving 9 companies, with an operated mileage of 6,956 miles, from which reports were not received.

Some of the companies found it difficult, within the time limits imposed upon them for the filing of these returns, to make their answers in as complete detail as was requested. For this reason the statistical statement that has been prepared on the basis of the returns from all companies is slightly condensed. This statement is reproduced herewith. In the case of the companies which filed reports, operating 227,199 miles of line, the totals shown are those actually reported. For the companies which did not report, operating 6,956 miles of line, the results shown are those reported by the same companies to the Interstate Commerce Commission in their annual reports for 1922.

The total expenditures for 1922, as reported to the Bureau and as summarized from reports to the commission, were $431,542,115. Of this amount $246,502,929, or about 57 per cent, represented additional equipment or improvements to equipment, while the remaining 43 per cent represented additions and improvements to road. Of the $246,500,000 expended for equipment, more than 72 per cent, or approximately $178,000,000, was expended for freight train cars. The next largest item, $41,000,000, was for locomotives. Of the $185,000,000 expended for road, the largest specific item was for additional track and for track improvements. This represented $50,600,000, or about 27 per cent. The next largest item, $17,000,000, was for heavier rail.

The authorizations for 1923, plus the carry-over from 1922, appear on the lower half of the statement. The first column shows the amounts actually reported by the roads which filed returns. There being no accurate basis of estimate for the railways that did not file reports, the same amounts have been entered for 1923 for those companies as

DISTRIBUTION OF TWO-YEAR TOTALS, 1922-1923

Item	Amount	Percentage distribution	
Total—All items	$1,540,214,419	....	100.00
Locomotives	238,615,936	15.49	....
Freight train cars	593,201,891	38.52	....
Passenger train cars	68,819,005	4.47	....
Other equipment	22,383,369	1.45	....
Total equipment	$923,020,201	....	59.93
Track	172,564,398	11.21	....
Heavier rail	44,032,531	2.86	....
Additional ballast	16,378,947	1.06	....
Shops, enginehouses, machinery and tools	70,997,126	4.61	....
Bridges, trestles and culverts	60,010,400	3.90	....
Stations and office buildings	33,366,500	2.17	....
Classification yards	25,517,500	1.66	....
Crossing protection and elimination	21,781,700	1.41	....
Elimination of curves and reduct. in grades	20,422,700	1.32	....
Storehouses, coal and ore docks and elevators	14,411,500	0.94	....
Signals and interlocking plants	14,193,400	0.92	....
Water stations	13,537,300	0.88	....
Purchase of land and buildings	10,778,500	0.70	....
Tunnels, subways and viaducts	10,448,000	0.68	....
Coaling stations	7,709,600	0.50	....
Telephone and telegraph lines	5,701,600	0.37	....
Electric power plants and transmissions	5,592,900	0.36	....
Roadway machinery and tools	4,453,200	0.29	....
Wharves, docks and piers	4,093,300	0.26	....
Miscellaneous	61,203,116	3.97	....
Total road	$617,194,218	....	40.07

ESTIMATED ADDITIONS AND IMPROVEMENTS TO RAILWAY PROPERTY DURING 1922 AND 1923

(Railways of Class I)

	Period and Item	Total roads reporting (227,199 miles)	Estimate for roads not reporting (6,956 miles)	All Class I roads (234,155 miles)
	Actual Additions or Improvements in 1922:			
1	Locomotives	$39,688,560	$1,480,331	$41,168,891
2	Freight train cars	169,940,256	8,052,123	177,992,379
3	Passenger train cars	17,871,378	31,304	17,902,682
4	Other equipment	8,923,623	515,354	9,438,977
	Total equipment (1 to 4)	$236,423,817	$10,079,112	$246,502,929
	Track:			
5	Additional 1st, main track	9,843,538	167,252	10,010,790
6	Additional main tracks	10,142,820	173,446	10,316,266
7	Additional yard, sidings, etc.	22,286,793	377,865	22,664,658
8	Improvements to track	7,639,121	.....	7,639,121
	Total track (5 to 8)	$49,912,272	$718,563	$50,630,835
9	Heavier rail	16,722,119	281,850	17,003,969
10	Additional ballast	5,249,113	89,821	5,338,934
11	Shop and enginehouses, including machinery and tools	13,469,464	164,155	13,633,619
12	All other expenditures	96,588,961	1,842,868	98,431,829
	Total road (5 to 12)	$181,941,929	$3,097,257	$185,039,186
	Grand total	$418,365,746	$13,176,369	$431,542,115
	Authorizations for 1923, Plus Carry-over from 1922:			
1	Locomotives	$195,966,714	$1,480,331	$197,447,045
2	Freight train cars	407,157,389	8,052,123	415,209,512
3	Passenger train cars	50,885,019	31,304	50,916,323
4	Other equipment	12,429,038	515,354	12,944,392
	Total equipment (1 to 4)	$666,438,160	$10,079,112	$676,517,272
	Track:			
5	Additional 1st main track	28,985,241	167,252	29,152,493
6	Additional main track	41,491,656	173,446	41,665,102
7	Additional yard track, sidings, etc.	41,803,525	377,865	42,181,390
8	Improvements to track	8,934,578	.....	8,934,578
	Total track (5 to 8)	$121,215,000	$718,563	$121,933,563
9	Heavier rail	26,746,712	281,850	27,028,562
10	Additional ballast	10,950,192	89,821	11,040,013
11	Shops and enginehouses, including machinery and tools	57,199,352	164,155	57,363,507
12	All other expenditures	212,946,519	1,842,868	214,789,387
	Total road (5 to 12)	$429,057,775	$3,097,257	$432,155,032
	Grand total	$1,095,495,935	$13,176,369	$1,108,672,304

GRAND TOTAL FOR THE TWO YEARS, 1922-1923

Equipment	$923,020,201
Road	617,194,218
Total	$1,540,214,419

were reported by them to the commission for 1922. This, Dr. Parmelee said, is unquestionably conservative, inasmuch as the authorizations of the companies that did report were more than 2½ times as great as their expenditures for 1922.

The amounts reported for 1923 include all carry-overs from 1922, namely, amounts authorized in 1922 for improvements, but not charged into the accounts in that year because the improvements were not completed. For example, equipment ordered in 1922 but not delivered until 1923, or construction work which was under way at the end of 1922, is included in these carry-overs. There will doubtless be a certain amount of carry-over from 1923 into 1924, although it is impossible to say how large such carry-over will be.

DETAIL OF "ALL OTHER EXPENDITURES"

(For roads reporting such expenditures in detail—216,136 miles. Balance of roads reporting—11,063 miles—did not report detail for this item)

Item	1922	Per cent of total	1923	Per cent of total
Expenditures Reported Against Items 8-14, 17-18:				
Item 8 Classification yards...	$5,098,290	5.7	$18,638,901	9.2
Item 9 Elimination of curves and reduction in grades.....	3,361,798	3.8	15,636,001	7.7
Item 10 Stations and office buildings	8,853,028	10.0	22,185,584	10.9
Item 11 Storehouses, coal and ore docks and elevators.....	2,662,434	3.0	10,743,546	5.3
Item 12 Bridges, trestles and culverts	13,576,153	15.3	42,247,397	20.9
Item 13 Water stations.....	3,744,533	4.2	8,848,299	4.4
Item 14 Coaling stations	2,272,107	2.6	4,899,607	2.4
Item 17 Signals and interlocking plants	2,959,757	3.3	10,243,367	5.1
Item 18 Telephone and telegraph lines	1,440,471	1.6	3,863,353	1.9
Total	$43,968,571	49.5	$137,306,055	67.8
Miscellaneous "Other Improvements" (Item 19):				
Assessments for public improvements	2,108,641	2.4	1,755,502	0.9
Crossing protection and elimination	4,921,505	5.5	15,340,537	7.6
Dwelling houses.....	447,394	0.5	571,409	0.3
Electric power plants and transmission	1,494,048	1.7	3,708,627	1.8
Purchase of land and buildings.	3,390,802	3.8	6,635,704	3.3
Motor cars and trucks.....	141,256	0.2	50,314	0.0
Office equipment.....	302,596	0.3	111,156	0.1
Paving	379,014	0.4	221,982	0.1
Retaining walls and dykes.....	1,331,424	1.5	442,149	0.2
Right-of-way improvements....	794,212	0.9	1,772,110	0.9
Roadway buildings	420,452	0.5	1,010,458	0.5
Roadway drains.....	408,933	0.5	265,783	0.1
Roadway machinery and tools.	2,852,238	3.2	1,290,275	0.6
Tunnels, subways and viaducts.	1,085,619	1.2	8,633,430	4.3
Wharves, docks and piers.....	3,687,648	4.2	120,081	0.1
Hotels, restaurants and hospitals	486,411	0.5	428,956	0.2
Other miscellaneous improvements	20,652,897	23.2	22,823,191	11.2
Total	$44,905,090	50.5	$65,181,664	32.2
Total for roads reporting detail	$88,873,661	100.0	$202,487,719	100.0
Total for roads not reporting detail	$7,715,300	....	$10,458,800	....
Grand total, "All other expenditures"	$96,588,961	....	$212,946,519	....

Note—Item numbers refer to blank form of March 16, 1923, sent to carriers by Bureau of Railway Economics.

The total for all purposes in 1923, a small part of which was estimated as indicated, is $1,108,672,304.

Of this total, about 61 per cent, or $676,500,000, is for equipment, while the balance of 39 per cent, or $432,000,000, represents improvements to road. Of the total authorizations for equipment $415,000,000, or 61 per cent, is for freight train cars, and $197,000,000, or about 29 per cent, for locomotives.

Of the $432,000,000 for road, about 30 per cent, or $122,000,000 is for additional track and track improvements, while the remainder is distributed among shops and engine houses, $57,000,000; heavier rail, $27,000,000; and other smaller items.

For the two years as a whole, the total expenditures and authorizations amount to $1,540,214,419, of which $923,020,201, or 60 per cent, cover equipment, while the remaining $617,194,218, or 40 per cent, apply to road.

This result confirms the preliminary estimate made the first week in April, which was $1,540,000,000 for the two years. The amounts reported for both years include equipment replacements. In general, the expenditures for such replacements in 1922 amounted to about a quarter of the total expenditures, and in 1923 will amount to one-sixth of the total authorizations thus far reported.

The largest item shown under "Road" for both years is the item "All other expenditures," amounting, for the railroads reporting, to $96,588,961 in 1922 and $212,946,519 in 1923. The table shows the detail of these expenditures, covering only the 216,136 miles of line which reported those expenditures in such detail that they could be segregated. The totals reported for this mileage were $88,873,661 in 1922 and $202,487,719 for 1923. Generally speaking, the principal items in both years were improvements to bridges, trestles and culverts; improvements to classification yards; elimination of curves and reductions in grades; signals and interlocking plants; improvements in stations and office buildings; water and coaling stations; storehouses, coal and ore docks and elevators; tunnels, subways and viaducts; elimination or protection of crossings.

The results for the two years combined are briefly summarized below. In this summary the comparatively small amount of "all other expenditures" reported by the companies that did not report that item in detail (including the companies that filed no reports) has been distributed according to the percentage distribution developed from the returns of the large number of companies that did report the item in detail.

Details of Car Service Work

M. J. Gormley, chairman of the Car Service Division, explained its organization, duties, authority and methods, with a brief outline of the history which led up to the present organization. He also submitted exhibits giving the results of various special studies and reports. In explaining the working of the car service rules and car handling generally under the Car Service Division, Mr. Gormley said:

The Car Service Division now has in effect orders for movement of cars from eastern to western lines. While no shortage exists at the present time in the western territory, this action was taken inasmuch as it was believed necessary to anticipate the agricultural requirements in the western territory and re-locate sufficient equipment to meet such requirements. In this movement the privilege is also withdrawn of allowing eastern lines under Car Service Rules to back haul a car of western ownership either loaded or empty to secure loading in the direction of the owning line. This order became effective April 16 and in the following 31 days there were 19,218 cars of western ownership delivered by the eastern to western lines through the Chicago gateway alone.

This movement is strictly in line with car ownership, the distribution through Chicago being made on basis of cars being delivered only to the home roads at that point or for intermediate movement to the owners beyond.

It is believed that with the improved conditions in the New England territory and the improvement in transportation generally, that this program will satisfactorily meet the situation in the West, and without the necessity for what is commonly known as "fleet" movements of equipment.

When Mr. Gormley at one point referred to the number of surplus cars as equalling the shortages reported at the same time, Commissioner Aitchison asked what good it does to have a surplus of cars in one place balanced by a shortage in producing territory and repeated his question as to whether the roads should not have 100,000 surplus cars as a working capital. Mr. Gormley started to answer the question as if it had referred to a surplus of 100,000 cars *at all times*, but Mr. Aitchison said he had not meant at all

times. He had meant to ask whether local car shortages of considerable severity are not usually to be expected when the surplus falls below 100,000. Mr. Gormley did not agree with this. He said that a small shortage of cars even without a considerable surplus is only an indication of shortage because the shipper frequently orders more cars than he could actually load and that in time of car shortage better utility is obtained from the equipment than when there is a known surplus. He pointed out that the railroads during the third week in May loaded 991,000 cars, while the shortage was only 23,000 cars. He said that the present method of reporting car shortages needs refinement.

J. E. Roberts, superintendent of transportation of the Delaware & Hudson, and chairman of the car service committee of the transportation section of the American Railway Association, outlined the history of the association's car service organization and of the car service, per diem and demurrage rules, etc., and T. H. Goodnow, superintendent of car repairs of the Chicago & North Western, outlined the history of the A. R. A. car interchange rules.

N. D. Ballentine, vice-president of the National Railway Service Corporation, read a statement containing a detailed analysis of freight transportation data for 16 years, for the purpose of pointing out unsatisfactory car service conditions, which, he said, could be remedied by the pooling plan of the Service Corporation. He said that the commission was familiar with the proposals of the corporation so that it would not be necessary to go into them, but it desired to have its usefulness extended by an act of Congress. He started to read a number of quotations from former A. R. A. committee reports, indicating that car service rules were not being observed and that excess empty mileage had resulted from efforts of the railroads to send cars home to avoid per diem during periods of car surplus. It was suggested that these quotations be placed in the record without reading, and Commissioner Potter said that he was anxious to hear what is the matter with the present situation and his views on defects in the present methods. Mr. Ballentine replied that the defect is in ownership rules and that to get real service out of the car supply the cars must be pooled. He expressed the opinion that 20 to 30 per cent more Pullman cars would be required to perform the service if they were not pooled. Mr. Ballentine read voluminous statistics regarding empty car mileage in relation to other factors of car performance and said that it is the unbalanced movement that runs up the transportation cost of the country tremendously. In proportion as this may be equalized, the tax on motive power is decreased and the capacity of the railroads increased, he said. He also showed that the percentage of bad order cars increases at times when cars are being returned to their owners because the railroads fail to repair foreign cars as well as they do their own. He said that the commission could form a better estimate of the ability of the carriers to meet the 1923 situation if it had obtained information as to the 1923 retirement program and that the figures of bad order cars and locomotives did not fully reflect the situation because, as the number is reduced by cars or locomotives that are retired without being repaired, they are replaced by others which require heavy repairs. In conclusion, he told the commission that the transportation program adopted by the railroads for 1923 does not provide for the most effective co-ordination of the facilities of the carriers and a most economical handling of the business and that this can only be brought about by a central agency endowed with sufficient authority to pool interchange freight cars. Commissioner Potter asked why that co-ordinating agency could not be the American Railway Association or some other railroad organization. Mr. Ballentine said the organization must have sufficient authority to carry out its orders. Mr. Ballentine's cross-examination was postponed until a later hearing.

C. A. Rice, statistical analyst of the Bureau of Car Service of the commission, put in the record a large number of statistical exhibits compiled from returns of the railroads to a questionnaire sent out by the commission, giving information as to the cars and locomotives owned by the railroads, their age, orders placed for new equipment, number of cars and locomotives needed and their cost, surpluses and shortages, loading, etc. These returns are to be summarized later.

The hearing was adjourned at noon on Tuesday without any time being set for the resumption of hearings. H. A. Scandrett, as counsel for the railroads, said that the railroads had put in all they had to offer at this time. Commissioner Aitchison said the question of holding hearings in other cities had been raised, but that thus far the only request for a hearing had come from some shipping interests at San Francisco.

Ljungstrom Turbine Locomotive for the Argentine

According to an article in Engineering (London), the government of the Argentine Republic has placed an order for a turbine-driven locomotive of the Ljungstrom type for use on the state railways in that country. This latter order is a particularly interesting one, for not only is the locomotive of special design, but upon its performance will depend a further order for a large number of engines, the placing of which will be deferred until the first machine has been put to practical tests.

The new Argentine locomotive is to be built for the meter gage lines and will use oil fuel, in the consumption of which the Ljungstrom Company has guaranteed to effect a saving of at least 50 per cent during the cold season and 40 per cent during the hot season as compared with ordinary locomotives doing similar work. Furthermore, in view of the difficulties of obtaining water along many of the lines of the country, the condensing properties of the Ljungstrom locomotive show to great advantage. The total amount of water carried is 5.5 tons in the condenser and 5 tons in the feedwater tank, this being sufficient for a non-stop run of 500 miles lasting 20 hours. The actual water consumption for such a run with a train of 700 tons behind the tender will not exceed 4 tons, and the oil fuel carried, namely, 6.5 tons, will suffice for the same journey, the oil being taken to have a calorific value of 18,900 B.t.u. per pound.

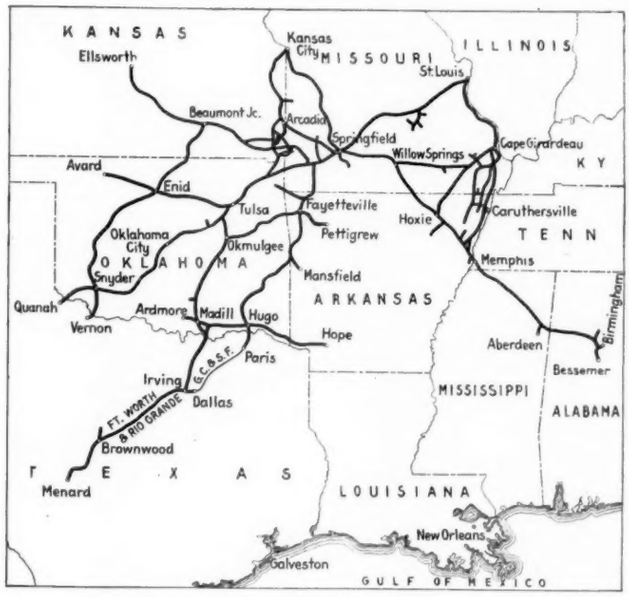
The general design of the locomotive will be similar to that illustrated and described in the *Railway Age* of September 23, 1922, page 560, the air-preheating arrangements, the gearing and the arrangement of the condenser elements being, however, modified. The total weight of the machine in running order will be 120 tons and the maximum speed 41 m.p.h. The boiler car is carried on a leading truck followed by three fixed axles. The condenser car, with the turbine and gearing, is carried on four driving axles, followed by a pony truck. The total wheel base of the locomotive is 16.6 m., the rigid wheel base being 3.2 m. The driving wheels are 1,470 m.m. diameter. The five axles under the boiler car are loaded with 11.5 tons each, and the driving and trailing truck axles with 12.5 tons each. The horsepower at the rim of the drivers is 1,750 boiler horsepower. A boiler heating surface of 100 sq. m. is provided, and a superheater surface of 57 sq. m., while the air-preheater, which replaces the more inefficient portion of the ordinary tube surface, has an area of 800 sq. m. The boiler works at a pressure of 300 lb. per sq. in.

The machine is being built by Messrs. Nydkvist and Holm of Stockholm.

Frisco Improved Markedly Since Reorganization

Contingent Interest Has Been Earned with Fair Margin in Each Year—Oil Traffic a Big Factor

WHEN THE ST. LOUIS-SAN FRANCISCO was reorganized in 1916, its interest charges were not greatly reduced. What did happen was that in place of a large share of the fixed interest charges there were substituted contingent interest charges to be paid if earned. There were established under the reorganization plan two issues of these income bonds, the adjustment mortgage bonds and the income mortgage bonds. The former, now outstanding in the amount of $40,453,343, bear interest at 6 per cent, which interest is to be paid only if earned but which is cumulative. The income bonds are now outstanding in the amount of $35,192,000, which also bear interest at 6 per cent to be paid



The St. Louis-San Francisco

if earned and not cumulative. A provision exists that the interest, if earned, may be paid in part in even quarters. The interest on the two issues of income bonds now amounts to $2,427,201 on the adjustment bonds and $2,111,520 on the income bonds, a total of $4,538,721. It is this amount that the Frisco has to play with. Including the interest on the income bonds, the annual interest charges of the Frisco now total $14,626,078, whereas on June 30, 1916, funded debt outstanding carried interest charges of $11,836,800.

The total funded debt as of June 30, 1916, was $268,774,654, whereas on December 31, 1922, it was $293,594,455, although, of course, it will be borne in mind that $80,967,623 includes the two income issues and also something over $5,000,000 of Kansas City, Memphis & Birmingham bonds on which, also, the interest is paid only if earned. It is a commentary on the improvement that has taken place in the Frisco situation that the Frisco system has been able, without undue difficulty, to earn in full all its interest charges, both fixed and contingent. The outstanding factor of interest in connection with the Frisco at any time is as to whether its earnings are sufficient to cover its contingent interest charges. Because the bonds were issued prior to the ruling of the Interstate Commerce Commission that the fiscal year should end on December 31, the income bonds are still on a fiscal year ended June 30 basis. However, in the calendar year ended December 31, 1922, according to the recently issued annual report, the contingent interest was covered with a surplus balance of $753,013. The Frisco, because of the coal and shop strikes, did not do as well in 1922 as it did in 1921, in which year, in spite of sub-normal traffic, the balance after interest was $3,225,680. On the fiscal year basis there was shown for the year ended June 30, 1922, a balance after payment of the interest on the income bonds of $4,085,397, this reflec ing more than anything else the favorable results which the Frisco secured in the latter part of 1921. The Frisco is doing extremely well just at this time. Its net after rents for the past several months has been running at the rate of $1,500,000 per month and the evidence is at this time that the returns for the fiscal year ended June 30, 1923, will show the usual ample margin earned over both the fixed and contingent interest charges.

Improvement Resulting from Oil Development

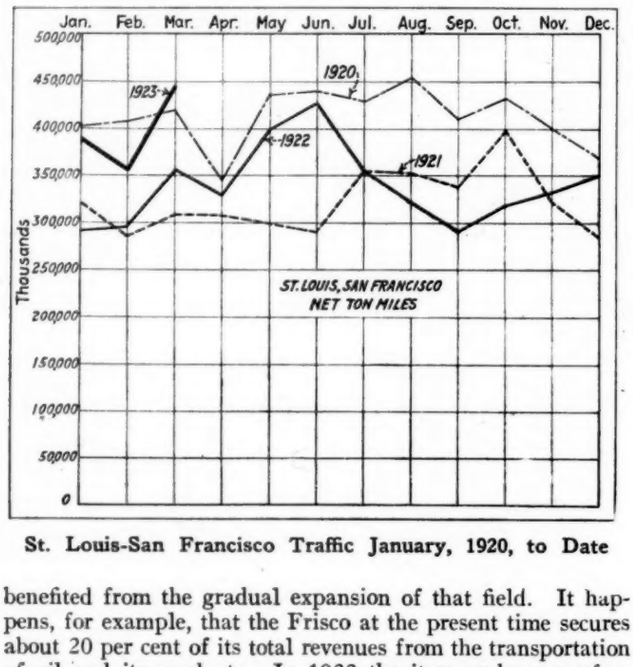
The Frisco, as we know it today, is a very different property from what it was prior to its receivership in 1913, which resulted in its reorganization in 1916. Speaking very generally, the outstanding difference is that the management of the property is now devoting a larger share of its attention to operating its railroad, whereas prior to 1913 Frisco activities were largely directed towards somewhat misguided expansion and its corollary activities. There is not much question that the Frisco today is a much better operating unit than it used to be when it was engaged in trying to make the Chicago & Eastern Illinois, the Gulf Coast Lines or other properties in which the Frisco had an interest, show a figure after fixed charges which could be put down in black. There must, however, be also a further explanation of the greatly

ST. LOUIS-SAN FRANCISCO TRAFFIC AND EARNINGS

Year ended June 30	Average mileage operated	Total operating revenues	Operating expenses	Op. ratio	Net operating revenues	Balance after interest	Revenue tons	Number of tons one mile	Average haul	Receipts per ton per mile (cents)	Revenue train load	Revenue car load
1913	5,255	$46,050,290	$30,711,094	66.69	$15,339,196	—$667,348	19,739,790	3,126,717,306	158	1.00	281	17.13
1914	5,259	44,923,569	33,270,600	74.06	11,652,969	—2,828,142	19,906,151	3,027,900,826	152	1.00	297	17.80
1915	5,252	42,974,573	29,839,038	69.45	13,135,534	—1,284,672	18,762,319	3,100,939,639	165	0.95	330	19.26
1916	5,255	48,403,390	32,775,759	67.71	15,627,631	1,481,090	20,459,901	3,452,384,669	169	0.97	334	19.31
Year ended Dec. 31												
1916	5,256	53,119,999	35,646,779	67.11	17,473,220	1,698,443*	21,270,024	3,697,396,315	174	0.99	337	19.24
1917	5,207	59,676,657	39,610,818	66.38	20,065,839	2,847,788	23,011,162	3,963,259,492	172	0.99	382	21.58
1918	5,166	72,475,313	57,807,310	79.76	14,668,004	125,587	22,998,106	4,155,542,672	181	1.13	392	23.45
1919	5,252	82,202,919	64,069,624	77.94	18,133,295	152,052	21,439,266	4,036,818,931	188	1.33	380	21.77
1920	5,253	98,723,040	89,886,545	91.05	8,836,495	1,743,231	24,718,345	4,621,380,827	187	1.44	398	23.44
1921	5,256	86,292,584	64,385,707	74.61	21,906,878	3,225,680	19,266,914	3,502,727,271	182	1.69	363	21.62
1922	5,246	83,008,023	62,631,731	75.45	20,376,291	753,013	20,542,247	3,602,864,505	175	1.60	373	21.28

*From year ended Dec. 31, 1916 balance is after contingent interest.

improved earning power of the property. One would unquestionably lay a large share of the reason for the improved situation to the expansion which has been going on in that section of the Southwest served by the Frisco as a result of the oil traffic. When anybody speaks of such a carrier as the Pere Marquette, one naturally refers to the difference which the automobile industry has effected in the earning power of that property, not so much because of the tonnage of automobiles or of commodities which enter into the manufacture of motor vehicles, as in the result caused by the industrial expansion of the state of Michigan. The situation in the case of the Frisco is very similar. It serves the Mid-Continent oil field centering on Tulsa and has naturally



St. Louis-San Francisco Traffic January, 1920, to Date

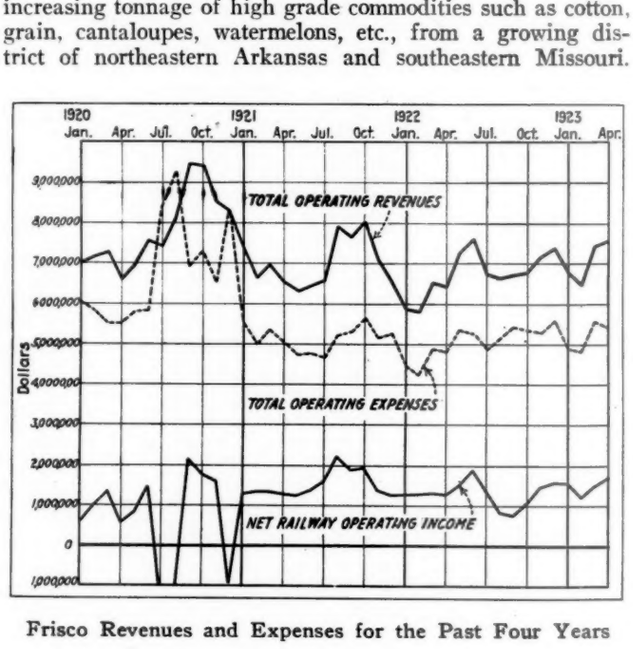
benefited from the gradual expansion of that field. It happens, for example, that the Frisco at the present time secures about 20 per cent of its total revenues from the transportation of oil and its products. In 1922 the item under manufactures in the classified commodity list, "refined petroleum and its products," showed a tonnage of 2,478,353 or 12.06 per cent of the total revenue tonnage handled during the year. The actual figure in tons or the per cent do not happen to be as great as the figures of various previous years but it happens that even only as far back as 1916 the tonnage was only 1,583,486 and the per cent, 7.44; or in 1913 the tonnage was

Oil and Coal Carried by Frisco System Showing the Growth of the Oil Traffic

Year ended June 30	Petroleum and other oils	Per cent	Bituminous coal	Per cent
1912.....	472,829	2.78	4,676,385	27.53
1913.....	652,023	3.30	5,411,002	27.41
1914.....	867,379	4.36	5,879,611	29.53
1915.....	1,082,097	5.77	5,323,104	28.37
1916.....	1,434,925	7.01	5,698,828	27.86
Year ended Dec. 31				
1916.....	1,583,486	7.44	5,671,346	26.66
1917.....	1,880,605	8.17	6,649,776	28.89
1918.....	2,549,115	11.08	7,060,630	30.70
1919.....	2,570,658	11.99	4,718,875	22.01
1920.....	3,074,441	12.44	5,992,248	24.24
1921.....	2,580,638	13.39	4,176,715	21.68
1922.....	2,478,353	12.06	4,688,171	22.82

652,023 or but 3.30 per cent of the total revenue tonnage in that year. It would be extremely interesting to analyze the effect on a railroad serving the oil country with a view to seeing just how much the gross and net earnings of the property were affected by the several elements corollary upon the securing of crude oil or the establishment of an extensive refined petroleum industry. Anyone who has seen such cities as Tulsa, Oklahoma City or Dallas, will hardly need much other evidence to be convinced that the effect on a railroad's prosperity would be extremely great.

The Frisco operates 5,246 miles of line. Its lines spread over a wide area in the states south and southwest of St. Louis. There are, in reality, two main links, one being the original St. Louis-San Francisco line from St. Louis southwest through Tulsa and Oklahoma City, and the other, the Kansas City, Fort Scott & Memphis line, which crosses the first at Springfield, Mo. The Frisco crosses through the Ozarks and one of its disadvantages is that it has a large number of heavy grade districts which, however, it is gradually correcting by means of a number of grade reduction and realignment projects. The traffic of the system is very diversified. It has been noted that refined petroleum and its products make up about from 12 to 14 per cent of its revenue tonnage. Another important commodity is coal, secured from several districts, notably the Oklahoma field, the Arkansas districts, the Pittsburgh, Kans. district and the Alabama district in the neighborhood of Birmingham. Coal in 1922 constituted 22.82 per cent of the revenue tonnage. The volume of coal handled was larger than in 1921 but very much less than in various previous years, this being primarily a result of the coal strike which affected all of the four fields except that centering on Birmingham. The Frisco also handles a large volume of products of agriculture and is securing an increasing tonnage of high grade commodities such as cotton, grain, cantaloupes, watermelons, etc., from a growing district of northeastern Arkansas and southeastern Missouri.



Frisco Revenues and Expenses for the Past Four Years

In 1922 products of agriculture constituted 14.51 per cent of the total tonnage. Lumber is not at the present time as important a commodity to the Frisco as it used to be in former years. In 1922 products of forests constituted 11.67 per cent of the total tonnage, this lumber being secured largely in southwestern Arkansas in the territory north of Texarkana.

Not as Good as in 1921

The best year that the Frisco has had since its reorganization in 1916, was 1921, in which year the road reported a surprisingly good net income in spite of the fact that its revenue ton-miles were less than in any year since the reorganization took place. The Frisco had a standard return of approximately 13½ million dollars. In 1921 its net after rents approximated 17½ million dollars. The 1922 traffic was

only slightly in excess of that handled in 1921. As a result of the rate reductions which took place during the year this small increase was not reflected in gross revenues. As a matter of fact, freight revenues were 2.6 per cent less in 1922 than in 1921 and total operating revenues, 3.8 per cent less. The strike of the coal miners and the railway shopmen acted as a check on the progress that the Frisco had been making in reducing its operating expenses, but it did, however, effect, as compared with 1921, a reduction in its expenses of 2.7 per cent. Net operating income of $15,361,834 was 12.4 per cent less than in the preceding year. It should be mentioned, however, that one of the number of reasons for the reduction, in addition to that embodied in the reduced revenues, was a sizable increase in a net debit for hire of equipment. The road's operating ratio for the year 1922 was 75.45, whereas in 1921 it was 74.61.

The coal strike affected Frisco revenues because it stopped production in three of the four fields which it serves and it affected expenses because of the limitation of fuel supply and the necessity of hauling coal from the Alabama district to points ordinarily served by districts nearer at hand. The railway shop strike showed in the operating expenses column a decrease in the charges for maintenance of equipment of 7.9 per cent, but it happens that the Frisco went through the fall with a very poor power condition. On July 1, its percentage of locomotives held for repairs requiring over 24 hours was 13.7, whereas on September 15, this had increased to 34.3. Fortunately, it has since been reduced so that on May 1, it was 21.9, which, however, is still slightly above the country's average. There is not much question that the Frisco in common with the other roads in the Southwest had considerable difficulty in handling its fall traffic. It has finally overcome its difficulties, however, because in March its net ton-miles were the best they had been for an extended period. In fact, the total was better than for any month in 1920, with the exception of the Frisco's best month in that year, August. Further evidence of the effect on the power situation as a result of the shop strike is given in the fact that in 1922 but 275 locomotives were given classified repairs as compared with 496 in 1921.

Maintenance of way expenses in 1922 showed an increase as compared with 1921 of 11.4 per cent. This is presumably the result of reduced maintenance work in the former year. Maintenance expenses in 1922 averaged $2,373 per mile of line, whereas in 1921 they had averaged $2,126. Cross ties laid in 1922 totaled 1,639,223 as compared with but 1,333,812 in 1921. In 1922 there were 20,964 tons of 90-lb. rail laid as compared with 6,717 in 1921. The Frisco's present situation is indicated by the assurance that it should earn for the fiscal year ended June 30, 1923, its contingent interest charges. Its traffic is at present running at record levels. In the first four months of 1923 it reported a net operating income of $5,999,321 as compared with $3,686,895 for the first three months of last year. It seems proper to look for a very favorable result for Frisco operations during the coming year.

The International-Great Northern

An interesting situation has recently arisen in Frisco affairs in connection with its proposed acquisition of the recently reorganized International-Great Northern. The Interstate Commerce Commission has denied the Frisco's request for permission to acquire the International road, apparently largely because it feels that the Missouri Pacific should be allowed prior rights as a result of the traffic relationships maintained for many years by the Missouri Pacific, Texas & Pacific and International-Great Northern over the route followed by the Sunshine Special. The Missouri Pacific at the present time is in a somewhat unfortunate predicament and it would have been a misfortune to that carrier had the International-Great Northern fallen into the hands of such a competitor as the Frisco. The International-Great Northern is not particularly characterized by its earning power nor has it a good physical condition but it is not without a good deal of promise because it offers an outlet to the Gulf of Mexico and a route into Mexico at Laredo, Tex., which will unquestionably prove of great value if conditions in that country are ever restored to normal. The International-Great Northern would unquestionably have proved of extreme usefulness to the Frisco because it would have offered it a much to be desired outlet to the south which would assist the Frisco greatly in securing through business. The Interstate Commerce Commission in its tentative plans for consolidations included the International-Great Northern with the other Gould roads in System No. 19. It included the Frisco with the Cotton Belt and the Katy in System No. 18. There ought to be much more heard about this situation in connection with the discussion of the consolidation plan, but it appears as if the present attempt of the Frisco to secure a southern outlet must be postponed until the future.

Brief on Nickel Plate Consolidation

WASHINGTON, D. C.

W. A. COLSTON and other counsel for the New York, Chicago & St. Louis, have filed a brief with the Interstate Commerce Commission in support of their contention that the commission is without jurisdiction to interfere with the consolidation of the Toledo, St. Louis & Western and the Lake Erie & Western with the Nickel Plate, which has been authorized by state laws.

"Neither the consolidation of railroad companies nor the prohibition of consolidation of railroad companies is a regulation of interstate commerce," the brief says:

"To assert that the Interstate Commerce Commission, by refusing a proper certificate of convenience and necessity, by withholding authority to issue securities, or in any other way, may nullify or destroy a consolidation, or any other incorporation, under state laws, would be to usurp for the commission a power which Congress itself does not possess.

"If we had not been requested to discuss the question we should consider as too preposterous for argument a proposition that an administrative body by an administrative ruling or order may either veto or exercise the reserved and sovereign power of the states.

"A *practical* administration of the act will avoid all constructions, discussions and theories which may lead to delay. A pardon after execution is of no avail.

"A *practical* administration of the act will not construe restraint or prohibition as relief from restraint or prohibition. It will not throw out a leaden life preserver.

"A *practical* administration of the act will not seek to make black that which is white, nor crooked that which is straight. It will not adopt strained and unconstitutional constructions to hinder and prevent the congressional intent when simple direct and lawful interpretation will accomplish the congressional purpose.

"A *practical* administration of the act will not invite either the constitutional public controversies or litigations over private rights, against both of which the legislative history of the act has warned.

"The country needs more adequate and more efficient railroad service; *the one means of effecting improvements in that service upon which all testimony agrees is by increased efficiency through unification.* The provisions of the transportation act for effecting such efficiencies and such unification have been in force more than three years, and yet, the Nickel Plate consolidation is the first substantial step in

the way of the progress which Congress intended. Can it be rationally contended that Congress decreed that such progress should be *halted* pending adoption of a *'plan'* which, after three years, is now only in a formative state; and thereafter, in each special case, pending the making of a *'valuation'* which after ten years is equally incomplete; and thereafter, pending the determination of tedious litigation which a restrictive administration of the law will inevitably call forth? Common sense, we think, emphatically answers, *'No.'*

"As the commission has reported to Congress, it is unnecessary to dilate upon the importance of the matters involved, and the questions must be answered in a spirit as big as the interests to which they relate.

"In our present national railroad crisis the introduction of dilatory questions (which a practical administration of the act ought to sweep aside) may cast the balance between life and death for our national transportation system.

"As the breaking point is approached the hand of *delayed* relief may stop the railroad pulse as the clocksmith with interjected finger arrests the beating of a clock."

Counsel for the Nickel Plate have also submitted to the commission a pamphlet containing copies of the orders of the various state commissions authorizing the consolidation and letters from senators, representatives, state governors and others endorsing it. This includes a letter from Chairman Meyer of the Interstate Commerce Commission in reply to one from Senator Watson of Indiana, in which Chairman Meyer says that the action by the commission "on as large and complicated an application as this, necessarily involves a good deal of work." There is presented, he said, not only the question of the propriety of the issue of the certificates requested and of the securities for which authority is sought, but also the question of the legality of the scheme under which the consolidation is to be effected. He pointed out that the transportation act provides that consolidations therein provided for shall be in harmony with the commission's plan and makes it lawful for two or more carriers to consolidate their properties into one corporation, subject to the approval of the commission and compliance with the conditions prescribed in the act.

"The applicant in this case, however," he said, "has disregarded, so far as its consolidation is concerned, the terms of the transportation act and is proceeding entirely under state law. It comes to us with its application only in connection with other provisions of the act and does not ask this commission to approve or pass on its consolidation. There is raised the very important legal question which will require the consideration of the commission in addition to the ordinary matters to be considered in connection with an application for a certificate of convenience and necessity and for the issuance of securities." Senator Watson replied to this, saying that unless legal complications are unnecessarily injected into the consideration of the comparatively simple questions involved, there does not appear any reason why the application should involve a good deal of work or any reason why it should not be promptly determined.

THE AMERICAN ENGINEERING STANDARDS COMMITTEE have recently approved as tentative American standards, a number of methods for the routine analysis of paint pigments, yellow, orange, red and brown pigments containing iron and manganese and of dry red lead as a basis for analysis, and in order to eliminate as far as possible the many controversies now existing. The specifications for these methods of analysis were presented for the approval of the American Engineering Standards Committee by the American Society for Testing Materials under whose auspices the specifications were developed. The specifications in more detail include methods of determining specific gravity, tinting strength of the colored pigments, moisture, and detailed methods for various chemical determinations.

Associated Traffic Clubs of America Meet at Indianapolis

THE ANNUAL CONVENTION of the Associated Traffic Clubs of America at Indianapolis, Ind., on May 23 and 24, was attended by 90 delegates from 34 of the 42 member clubs. During the meeting action was taken on several important transportation subjects, the constitution was revised to provide for a better form of organization and officers were elected.

In considering railroad consolidation, the association expressed its opinion that the section of the Transportation Act under which the Interstate Commerce Commission is proceeding to dictate plans for a general consolidation to which all consolidations in the future must conform, should be repealed and that in lieu thereof authority should be given to the commission to authorize railroad consolidations on the application of interested lines, provided that such consolidations, in the judgment of the commission, are in the public interest and will not substantially lessen carrier competition. The association condemned the proposed compulsory consolidation of the railroads as a step toward ultimate government ownership or operation and as probably unconstitutional. It was also voted to impress on those discussing the subject of consolidation before the commission or elsewhere, the importance of making known their opposition to any such general consolidation, if such opposition exists.

The action of President Harding in appointing Frank McManamy to the Interstate Commerce Commission was not in accord with the attitude of the association toward commission appointments, since Mr. McManamy was thought to lack the training and experience that the association believes is necessary to fit him for the office. A resolution was adopted to the effect that the association express its regret that its previous admonition expressed on December 5 and 6, 1922, and sent to the President of the United States had not been heeded and it was voted that a copy of this resolution be sent to the President of the United States.

A report of a special committee on the education of the public in matters of transportation was adopted and the association expressed a belief that in public education is to be found a solution of the railroad problem with respect to sound national legislative and regulatory policies that will result in adequate revenues to the carriers and reasonable rates to the shippers. Although others than the carriers are interested in bringing about this solution, the association believes that the primary responsibility rests on the carriers because they are most vitally and directly affected and because they have the resources and the organization with which to work. The association also believes that the machinery and methods now employed by the carriers are not sufficient to produce the desired results. The association recommended that the railroads adopt a more effective plan for conducting their public relations by constituting a recognized and able central publicity authority whose function would be to answer immediately, and in such ways as best to bring about publicity, misrepresentation as to the railroad situation made in Congress or in other ways national in scope; to prepare and distribute to individual carriers material to be used by them in educational campaigns along their own lines, such individual campaigns to be planned after consultation with the central publicity authorities; to call on representatives of individual carriers or on such committees of carriers as might be constituted for action in local cases of misrepresentation or lack of proper information. It was also recommended that this central authority be supplemented by the organization of state public relations committees of representatives of carriers whose functions shall be to co-operate with the central authority and with each other and to handle their local situations with or without advice from the central

authority through paid publicity agents, personal calls on editors, personal efforts directed toward individuals or organizations and through such other means as may seem advisable from time to time. The association recommended that individual traffic clubs establish public affairs committees, one of whose functions shall be to take note of misrepresentations or popular misunderstandings of transportation problems with a view to calling them to the attention of the proper railroad public relations committees and otherwise co-operate with these committees and in all other possible ways to assist in the work of bringing about correct public understanding. The association approves the purpose of the recently organized National Transportation Institute.

A special committee on intercoastal steamship rates reported that the interests of all concerned require the intercoastal steamship rates be placed under the jurisdiction of the Interstate Commerce Commission and recommended that the subject receive the earnest consideration of member clubs with a view to definite action at the next meeting of the association. The report was discussed and after being amended, was adopted.

O. I. Gantt of Wichita, Kansas, offered a resolution on the Warfield car-pooling plan, which after being referred to a committee, was adopted. This resolution was to the effect that the Associated Traffic Clubs of America oppose with every means at its disposal the adoption of the so-called Warfield plan and that the association recommend and urge that the American railroads be permitted to work out the car distribution problem themselves without being hampered by further legislation on the subject.

The report of the committee on the correlation of water, rail and highway transportation outlined the results of a questionnaire in which reports thus far recieved from 17 states and the District of Columbia indicate a wide variation in the method of taxing and regulating automotive vehicles, licenses ranging from $1 per truck (with special license tax) to $500 per truck. Only six states require a certificate of necessity for the operation of motor trucks for hire while legislation is pending in three other states. The same variation exists in the control of rates and service by state regulatory bodies. Seven states report special taxes in addition to the registration fee while such legislation is pending in five additional states, which, if adopted, will create a special tax generally on the basis of one cent per gallon of gasoline consumed.

The association voted to recommend for the consideration of member clubs, the resolution adopted by the New York Traffic Club favoring investment of surplus club funds and investment by individual members of clubs in railroad securities as a practical means of showing and establishing confidence. A resolution was also adopted pledging the association to use on its stationery and printed matter the slogan, "Give Our Railroads a Chance," and recommending that member clubs do the same thing and that industrial members of clubs use their influence with the business concerns by which they are employed to do likewise.

All old officers were re-elected with the exception of B. L. Birkhold of New York, who was elected secretary, and J. C. Stockton of Chicago, who was elected treasurer. T. C. Burwell of Decatur, Ill., was elected a director to succeed R. N. Field, of Peoria, Ill., resigned. Four new directors were elected for three years as follows: F. C. Renshaw, Cincinnati, Ohio; R. C. Fulbright, Houston, Tex.; C. D. Dooley, Kansas City, Mo., and W. C. Fitch, San Francisco, Cal.

Radicals Hold Valuation Conference in Chicago

Government Ownership Is Goal of Meeting Attended by "Progressives" and Labor Leaders

THE NATIONAL CONFERENCE on the Valuation of American Railroads called by Senator La Follette, which was held in Chicago on May 25 and 26, elected a permanent organization, condemned the methods of the Interstate Commerce Commission in making its valuation of the railroads, threatened to bring suit against the commission to force a valuation based on "original cost" and demonstrated plainly that the hoped-for result of the conference was a step towards government ownership. The conference voted to develop an organization in each state and adopted resolutions declaring that the Interstate Commerce Commission, in fixing its valuation of American railroads "had failed to comply with many of the mandatory requirements of the valuation act." In particular, the commission was charged with not reporting the methods it uses in arriving at values. The conference voted to make a formal demand upon the commission that it take up "original cost and donations," and if this demand is refused, to institute legal proceedings. Bills are also to be presented in Congress concerning these aspects of the transportation question.

Over 100 governors, senators, congressmen and labor leaders attended the sessions of the conference which began at 10:30 Friday morning, May 25, and closed late Saturday night, May 26. Among those who attended were Governors Ross of Wyoming, Sweet of Colorado, Walton of Oklahoma, and Blaine of Wisconsin. Besides Senator La Follette of Wisconsin, Senator Frazier of North Dakota, and Senator Shipstead of Minnesota represented the progressive bloc in the upper house of Congress. Among the congressmen in attendance were Cooper of Wisconsin, Huddleston of Alabama, Logan of South Carolina, Nelson of Wisconsin, and Reid and King of Illinois. The heads of virtually all of the railroad labor unions, including Warren G. Stone of the Brotherhood of Locomotive Engineers, W. G. Lee of the Brotherhood of Railway Trainmen, Timothy Healy of the Brotherhood of Firemen and Oilers and T. C. Cashen of the Switchmen's Union, were present. Others who accepted invitations to the conference included Hon. William Jennings Bryan, Ex-Governor Dunne of Illinois, Mrs. Raymond Robbins and Mrs. Minnie Fisher Cunningham of the National League of Women Voters.

During the executive session of the conference on Friday, Senator La Follette of Wisconsin was made permanent chairman of the conference and Representative W. Turner Logan of South Carolina was made permanent secretary. The committee on permanent organization includes Representative George Huddleston, democrat, of Alabama, chairman; Senator Robert L. Owen, democrat, of Oklahoma; Senator Henrik Shipstead, farmer-labor, Minnesota; Senator Lynn Frazier, republican, non-partisan, of North Dakota; Governor W. E. Sweet of Colorado; Governor W. B. Ross of Wyoming; Governor John J. Blaine of Wisconsin and Hon. William Jennings Bryan. Warren S. Stone, president of the Brotherhood of Locomotive Engineers was elected chairman

of the Committee on Finance. Other members of the committee are William Kent of California, former congressman; Carl Vrooman and Mrs. Raymond Robbins.

The Purpose of the Meeting

Although there were many diverse opinions among delegates to the conference as to its real purpose, it was generally conceded that the underlying objective was to set the ball rolling for a government ownership campaign and to sound the keynote of a third presidential party headed by Senator La Follette. The fact that the Interstate Commerce Commission and its valuation proceedings were so thoroughly discredited by the speakers, and the outspoken demand for government ownership which ran through all the sessions of the conference left little doubt as to Senator La Follette's reason for calling the meeting. The senior senator from Wisconsin ruled the conference with an iron hand and directed the thought of the delegates as he pleased. He was plainly delighted with the sentiments which were expressed by his personally chosen delegates and seems well satisfied with the presidential keynote which was developed. While the prevalent idea at the conference was that it was intended to give the "progressive bloc" a flying start for the congressional session which opens in December, the fact that Senator Capper of Kansas and many others of the bloc were absent lent weight to the rumors that a split bloc is likely to develop when the La Follette railroad plans are brought before Congress.

The morning sessions of the conference were open to the public to the limited capacity of the council chamber of the City Hall of Chicago, but the executive sessions which took place during the two afternoons were closed to the public and to newspaper men. The real work of organization and the formulation of plans for the future were accomplished at the closed sessions, and the leaders made strong efforts to prevent information leaking out regarding what took place behind the closed doors. At these sessions the delegates were more outspoken in condemnation of the Interstate Commerce Commission and the Supreme Court, and presented a solid front in favor of government ownership of all public utilities and a valuation on them which would be the lowest that could possibly be computed. The conference declared, not for a fair valuation of the railroad properties, but for the lowest which could be fixed.

Senator La Follette opened the conference with a reiteration of the purpose of the meeting. He stated that the conference had been called by the committee of transportation of the "progressive group." Intimating that the goal of this committee was government ownership, he declared that the valuation of the railroad properties of the country was the foundation of the work to be done. Characterizing the railroad and the public as antagonists, he declared that railroad valuation is the bone of contention between them. The three propositions stated by Senator La Follette as the cause of the conference were to promote and protect the public interest in valuation of railroad property and prevent excessive valuation; to take such steps as are necessary through action before the courts to require the Interstate Commerce Commission to comply with the Transportation Act and to form such an organization as is necessary to accomplish the foregoing.

Hylan Attacks Railroads

Following a brief welcoming address by Mayor Dever of Chicago, Mayor Hylan of New York was introduced as the first speaker. Mr. Hylan plunged at once into a vitriolic condemnation of all capital. He declaimed that "railroad magnates" have blackjacked and sandbagged the people. His demands for government ownership were the most insistent which were made at the conference. "If the government owned the railroads," he said, "the people would have reasonable rates, since government operation is more efficient and economical than private operation. A centrally located method of freight operation," he said, "would save $1,000,000 a day." He charged railroad managements with indifference regarding the duration of strike shopmen. Mr. Hylan said in part:

"Passenger and freight rates have doubled during the past 16 years. Where have the profits gone? The railroad magnates are more interested in profits than in efficient operation. Spies, strong-arm men, legislative lobbies and the establishment of favorable public sentiment received the railroad's money instead of the upkeep of cars and locomotives. There are everywhere indications of an unprecedented business boom throughout the country. If this boom is not to be permitted to die in the doldrums, the railroads must be ready. How do the railroad managers propose to get ready to take care of the heavy loading in order to prevent this wave of national prosperity from receding? The bright thought has occurred to them to borrow and to spend during the current year about $1,500,000,000 for equipment by the issuance of bonds or equipment trust certificates. Instead of spending needed money on the present equipment and operating such through the existing facilities with an efficiency that would give service as well as profit, the companies intend to mortgage the future to pay for the maintenance of equipment that should come out of operating revenues.

"Public ownership and operation of the railroads appears to be the only way out of the present situation. Action towards this end should not be deferred until some giant locomotive blows up in a terminal and the dead and dying are strewn about its wrecked station.

Suggests Railroads Be Returned to People

"If the government bought the railroads there would be no Interstate Commerce Commission because regulation would then be made from within and not from without; and as the government would be more interested in protecting the health, comfort, convenience and pocketbooks of the people, the rates to the shippers and the traveling public would be fair, equitable and just because they would not be based upon fraudulent or fictitious valuation or capitalization filled with a Niagara of water. There should be government ownership and operation followed by scientific unification of all the railroads. The railroads do not belong to the little clique of banking exploiters who dominate them. The stock and bondholders of our railroads want the 2,000,000 employees of the road to render full service loyally and faithfully. This can be done only under the proper direction of a management which neither keeps its eyes glued to the quickly revolving tickers of Wall street nor owes any allegiance to outside interests.

"Therefore, let us have the railroads returned to the people on the basis of actual money invested, estimated at $13,000,000,000 and we shall stop the watering, the exaction of tribute, the robbery of the honest investing public, the lootings and the wreckings, the breakdowns and the industrial disturbances which from time out of mind have made the private operation of the railroads of this country smell to the very heavens."

Governor Sweet of Colorado, the next speaker, naively admitted that two weeks previously he had known nothing about the railroads, and then launched into an "expert" analysis of the transportation question. He condemned the present management and lauded the purpose of the "progressive bloc." He declared that the public is no longer alarmed at the radical progressive bloc idea. The public, Governor Sweet said, has noted the legislation by the bloc and has approved it. He declared that the securing of the basic facts with reference to the valuation of the roads is radical, and said he was willing to accept the appellation.

Large Shippers Submit Questions to Conference

Before the close of the Friday morning session a committee of Chicago business men and shippers headed by J. P. Haynes, traffic director of the Chicago Association of Commerce, attempted to serve on the conference a categorical list of questions as to the "progressive bloc's" aims and purposes in its drive on the public utilities of the country. The statement and questions follow:

"Since this conference as announced in the press is a menace to all the people, it is important that an unequivocal statement of its plans and purposes should be given to the public in order that such steps may be taken as circumstances seem to require. To elicit such a statement we, representative shippers, more virtually concerned in good railroad service than politicians who can pay no freight bills, demand categorical answers to these questions:

"1. You have alleged that the public is not represented in valuing the railroads. You must know that tentative valuations are made under direction of the Interstate Commerce Commission; that they must be submitted to the commission, to the attorney general of the United States, and the governors and the public utility commissions of the states concerned for approval or protest; that if protested, tentative valuations must be revised. If these governmental agencies do not represent the people, whom do they represent?

"2. Do you contend that the public interest would be better served in some other ways than by these governmental agencies?

"3. You, Senator La Follette, made the assertion in the senate May 31, 1910, that all the railroads in the United States could be valued at an expense not exceeding $2,400,000; and that such a valuation would save the country in transporation charges in 12 months more than 150 times the cost of making the valuation of the physical property of the railroads."

The valuation has been proceeding for ten years, yet not one of the great eastern systems has been valued even tentatively, while to June 30, 1922, this work has cost the government $23,058,000, and the railroads $62,885,000, a total of $85,943,000. The one hundred and fifty times this amount which you said would be saved, would be $12,891,450,000, which is much more than twice the aggregate gross earnings of all the railroads last year. Will you kindly explain to the satisfaction of your fellow citizens the remarkable discrepancy between your promise and its fulfillment?

"4. Since you failed so notably in forecasting the cost and benefits of the original valuation set, would the country be justified in undergoing the period of agitation, uncertainty and business disturbance which would be an inevitable concomitant of the revaluation you propose?

"5. Valuation is a feature of the program of railroad regulation which includes the limitation of earnings, which is based on the hypothesis that railroads are 'affected with a public interest'—that is, that they are a public necessity. Food is more vitally necessary than transportation; for while mankind existed for ages without railroads, no part of the race ever existed without food. Is not food, therefore, 'affected with a public interest' and should not its production, the prices at which it is sold, the profits made thereby, and the quantity which may be eaten at a meal also be regulated by law?

"6. Granting that railroads are 'affected with a public interest,' is it not equally true that they are also affected with a private interest? All railroad capital consists of private funds voluntarily invested in the hope of earning dividends. Owing to restrictions on railroad earnings and the consequent uncertainty of dividends, it has become so difficult to sell railroad stocks that capital is now secured chiefly by borrowing. If further restrictions should make it altogether impossible to sell railroad stocks, how are extensions and betterments to be provided?

"7. Lenders of money on farm mortgages receive 6 per cent interest or more. Investments in railroad stocks are limited by law to 5¾ per cent and they may receive nothing at all. If this discrimination is continued are owners of capital not likely to invest all their money in other enterprises to the total exclusion of railroads? If they do, how are railroads to be financed?

"8. Assuming that there is no limit to the borrowing capacity of railroads nor to the power of Congress to order railroad expenditures, will the time not come when earnings will no longer be sufficient to pay interest, a contingency which would throw all railroads in the hands of receivers? What have you to propose to avert such contingency?

"9. Frequent threats have been made by your coterie to precipitate government ownership of railroads. It seems proper therefore, to ask you to explain why Canada's government railroads have an annual deficit of $100,000,000 to be made up by taxpayers, while the Canadian Pacific railway, under private ownership, built under far more difficult conditions than the government railroads, but out of reach of Congress, has never failed to pay an annual dividend and has paid 10 per cent for years, while its stocks sell at a higher price on the New York Stock exchange than those of any railroad in the United States.

"10. You and your associates have asserted that freight rates are so high that they amount to an embargo on the free movement of agricultural products; that the economic life of the nation is stifled by exorbitant freight rates. Nevertheless these rates are low enough to enable farms on the Pacific and Gulf coasts to market their products along the northeastern Atlantic coast and in all the country intervening. The process must be profitable because, according to agricultural department statistics, the value of farm property increased nearly fourfold in the twenty years from 1900 to 1920, while the value of farm products—the value on the farm, not at terminal market—increased correspondingly in the same period, although rural population increased less than 14 per cent in that period. Can there be anything very seriously wrong with a transportation system which has made possible so great an increase in rural wealth?

"11. Assuming that railroad valuation is too great by $7,000,000,000 as Senator Brookhart alleges, rates based on a valuation reduced $7,000,000,000 would save the public less than 6 per cent in freight and passenger rates on the basis of present actual earnings, expenses and taxes, or an average of $3.50 per capita per annum, as any one can ascertain for himself. This fact being indisputable, it is pertinent to ask if this conference is not in reality a 'press agent stunt' staged to prejudice the people against the railroads and thus promote the political advantage of the so-called 'progressive bloc.'

The Conference Replies to These Questions

Senator La Follette adroitly prevented the filing of this questionnaire with the conference at the morning session, but it was finally received at the afternoon executive session and considered behind closed doors. The answers to the questions were given out after the close of the executive session on Saturday. These answers are as follows:

1. The purpose of the conference is to organize for a united front the governmental and private agencies who really represent the people.
2. In this manner, it is contended, the public interest is best served.
3. Senator LaFollette has no control over the expenditures or methods of conducting the valuation proceedings, which in many respects have been carried in contrary to his intentions as expressed in the law.
4. There is not the faintest suggestion that there should be a revaluation, but the conference desires that the Interstate Commerce Commission shall comply with the law and make a complete report of all the elements of value which the commission is required to consider and make a fair and just valuation.
5. Transportation is monopolized public service carried on by corporations operating under public grant. Any industry monopolizing an essential may be properly subject to public regulation.
6. It is the prevailing opinion in the conference that a practical guarantee of return upon fruits of investment in public utilities will increase the ability of the utilities to finance extensions. The present difficulties arise from gross mismanagement and dishonest financing.
7. Railroads and other public utilities, if soundly managed and financed, have always been able to obtain money at lower rates than enterprises at greater risks.
8. If anything will prevent further railroad receivership, it will be the elimination of financial exploiters in the control of transportation systems.
9. The question makes assumptions regarding private and governmental operation of Canadian railroads which are untrue and therefore its conclusions are false and do not merit a detailed reply.
10. The farm organizations claim that there has not been an increase but, as is well known, an enormous decrease in rural wealth caused largely by the burdens placed upon agriculture, such as transportation rates.
11. The conference, in its membership and conduct, has demonstrated its solid purpose and its non-partisan devotion to the public interest. The only "press agent stunt" that has been staged has been the effort of railroad propagandists to fill the papers with illicit and inexcusable statements of the purposes and probable results of the conference.

At the first executive session on Friday afternoon, which was held behind closed doors at the Congress Hotel, a permanent organization of the conference was formed. Donald R. Richberg, attorney of Chicago, reported on the legal aspects of the valuation act of 1913. The principal argument he advanced was that congress intended that the actual invest-

ment as represented by original cost was to be made the basis of the valuation and that so far the Interstate Commerce Commission has failed to ascertain original cost as directed by the act except for a small mileage of railroads. E. W. Bemis, an attorney of Chicago, then read a report on some of the economic aspects of valuation, after which the day's session closed.

At the open session on Saturday morning, William Jennings Bryan was the featured speaker. Mr. Bryan said that he preferred private ownership but fancied public ownership was coming. He remarked that 25 years ago he had suggested government ownership but that he now "feared centralization in Washington." Mr. Bryan said in part:

"While I prefer private ownership of the railroads, I fear that the country will be forced to government ownership because private ownership will not endure. A private monopoly is indefensible and intolerable. While we have private ownership, we want it regulated as far as possible. Thirty years ago I was saying that rates should be fixed to yield a return on the actual cost of reproduction. Now because prices have gone up to higher levels, the cost of reproduction is much greater than the original cost of building. Where 30 years ago the roads called reproduction cost basis confiscatory, they now say it would be confiscatory to put it down at what it cost to produce. Why? Because it now costs more to reproduce than it did to build. It is the natural bias. My own opinion is that when the figures finally come from the Interstate Commerce Commission you can take the cost of reproduction and the cost of building, and if the cost of reproduction is greater, every railroad man will be for that valuation and our side will be for the original cost of building."

Mr. Bryan expressed little sympathy for the holders of railroad securities. Buyers of railroad stock, he said, can inform themselves as to the value of the stocks and as to whether they represent something of value or water.

Following Mr. Bryan, Governor Blaine of Wisconsin introduced some figures indicating differences in the several methods of valuing. He declared that the Great Northern; the Duluth, South Shore & Atlantic; the Pere Marquette, the Wisconsin Northern and the Wisconsin & Michigan all claim valuations approximately double those which have been tentatively fixed.

Following a short address by W. B. Ross, governor of Wyoming, Grenville S. McFarland of Boston urged government ownership of the railroads. So long as private operation continues, he said, the railroads will "raise rates and lay waste the country." In regard to the work of the conference, he said: "This work will promote the campaign for securing government operation of the railroads. If the commission fixes a just valuation, it will secure a lower cost for the people when the railroads are bought."

W. C. Lansdon, national lecturer of the Farmers' Co-operative and Educational Union, then discussed the magnitude of the stake which the farmers have in the railroad problem. He painted a depressing picture of the agricultural situation and laid the blame on the freight rates which the farmers must pay on their products.

The conference ended after four hours of oratory behind closed doors at the Congress hotel Saturday afternoon. The delegates adopted resolutions approving the development of organizations in each state in the union to further the program of the bloc in preparation for the coming campaign; declaring that the commission had "failed to comply with many of the mandatory requirements of the Valuation Act"; demanding that the commission take up the "original cost" and "public donations" and proposing the preparation of bills to be presented to Congress concerning these aspects of the transportation problem.

The resolutions which were adopted follow:

"Whereas, The Interstate Commerce Commission is engaged in fixing the valuation of the railroads by authority conferred by Congress but has failed to comply with many of the mandatory requirements of the valuation act of 1913, particularly in—

"1. Not ascertaining the original cost of railroad properties.

"2. Not ascertaining the amount and value of public donations to the railroads;

"3. Not reporting the methods whereby it arrives at the values fixed; and

"Whereas, This valuation work is nearing completion and important precedents will be established in decisions now imminent; and

"Whereas, The ascertainment of the actual private investment prudently made in the railroad properties is the primary duty imposed upon the commission, and its failure to perform this duty in compliance with the law will make it impossible to protect the public interest in these valuations and may result in increasing unjustly transportation rates to an amount estimated at not less than $500,000,000 annually; and

"Whereas, The principles established in decisions affecting railroad rates must necessarily have a vital bearing upon the determination of fair and just rates and charges for street railway, telephone, water, gas, electric light and power and other public utility services, and it is important that the public be protected against excessive rates and charges for these services;

"Therefore, be it resolved by this conference that

1. Representatives shall present to the Interstate Commerce Commission a formal demand that it comply with the requirements of the valuation act.

2. Upon failure to comply, representatives of this body shall prosecute such legal proceedings as may be necessary to compel acquiescence.

3. Such legal counsel, engineering, accounting and other expert assistance as will be necessary to carry out this program.

The conference is further authorized to investigate and take such action regarding "other aspects of the transportation problem as may be found advisable to protect and advance the public interest and prepare and promote the adoption of legislation adapted to that end, and do all in its power to increase public information on factors which affect the vital interests of producers, consumers and distributors in economical, efficient transportation service."

At Waycross, Ga., recently, there was a conference between representatives of the Atlantic Coast Line Railroad and a committee of citizens, in which the citizens were informed that if 100 houses could be provided 100 additional skilled workmen would be added to the force now employed in the Waycross shops. A committee of citizens was named to study the situation, determine the number of houses needed, and look into the advisability of organizing a joint stock company to begin a building program.

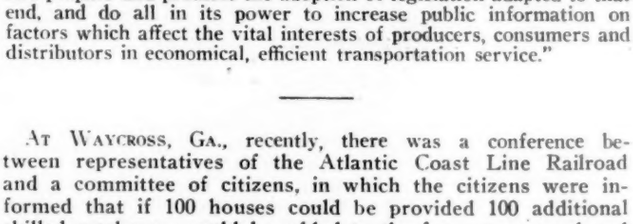


Photo from Underwood & Underwood

Dismantling the Train Shed at the Old Chicago Union Station After 43 Years' Service to Make Way for New Terminal

Fuel Convention Completes a Broad Program

Association Starts Activities in the Power Plant Field in Addition to Its Attention to the Locomotive

ABOUT 400 MEMBERS and guests were in attendance at the fifteenth annual convention of the International Railway Fuel Association held at the Hotel Winton, Cleveland, Ohio, May 21 to 24, inclusive. A sustained interest in the proceedings was evident by the large attendance at all of the sessions until the completion of the program with the election of officers.

An account of the proceedings of the earlier sessions of the convention appeared in last week's issue. An account of the later proceedings is given below.

Value of Individual Fuel Performance Records

By L. G. Plant
Editor, Railway Review

Fuel consumption, upon a freight ton-mile or passenger car-mile basis has been frequently and appropriately referred to as the pulse of railway operation. It is sensitive to every operating factor and mechanical detail of importance. Efficiency in fuel use is, therefore, contingent upon good management throughout the operation of the railway, and fuel economy can only be achieved by a concerted effort embracing the entire service. On this ground it is contended that the organization of fuel economy must be broad enough to comprehend the activities of all departments. With such an organization the results depend upon the effectiveness of the methods employed and the thoroughness with which they are applied.

What Is True Fuel Economy?

But what is true fuel economy? It is important to consider the real objective and not be misled by a superficial indication of economy.

Fuel consumption on the Pittsburgh & Lake Erie for the year 1922 averaged 85 lb. of coal per 1,000 gross freight ton-miles. This is the most efficient use of fuel in freight service on record for the past year, but it does not necessarily indicate the greatest measure of economy. Perhaps, if a careful analysis of all the operations affecting fuel economy were possible on all railways, it would be found that another road, say the Soo line with an average fuel consumption of 130 lb. per 1,000 gross freight ton-miles, was the most economical consumer in 1922. It is the absence of any accurate measure for fuel economy that clouds the achievements of those who are most earnestly devoted to this work and causes many railway managers to doubt the value of a fuel department. The operating, mechanical and engineering departments are known to be essential, but until the fuel department can measure results in specific and individual economies its existence will continue to depend largely upon the personality of the men in charge and the disposition of the management. A single individual record that demonstrates a saving for which the fuel department was responsible is of more real significance to that department than an average for the system which may be credited to any one of several departments and ascribed to a hundred different causes.

The principal of the individual fuel record is fundamental to fuel economy. A satisfactory individual fuel record system is generally conceived to be one in which the inaccuracies in fuel measurements have been eliminated, as is possible with oil fuel or where weighing devices have been incorporated in the coaling stations. But this fails to take into consideration the unstable nature of the base against which the quantity of fuel used is prorated. If the freight tonnage or number of passenger cars hauled were always the same, and if the running time, together with delays, never varied; then, barring unusual weather conditions, and only then, would an accurate fuel measure prorated against the freight ton-miles or passenger car-miles afford a reliable indication of the joint fuel efficiency of engine crew and locomotive. Rarely, however, are either engine crews or locomotives continuously operated under identical operating conditions.

How Variable Operating Conditions Affect Fuel Performance

For example, let us assume that under favorable conditions the fuel consumption with a 2,500 ton train on a 100-mile run is 12½ tons. This would be at the rate of 100 lb. of coal per 1,000 ton-miles. However, if 1,000 tons were set out half way over the division or the train were run out 500 tons light to balance traffic, the fuel consumption would not be reduced proportionately. It would probably not be less than 11 tons, or at the rate of 110 lb. per 1,000 ton-miles. Again, if the average time on this run is 10 hours under favorable conditions, but, for various causes, is increased to 15 hours with a tonnage train, it is a matter of common observation that the fuel consumption would be increased to at least 14 tons, or at the rate of 112 lb. per 1,000 ton-miles. Suppose, on the other hand, that the locomotive handled its full tonnage under normal conditions, but that an error of as much as one ton was made in charging coal issued to the locomotive so that this was reported as being 13½ tons instead of the correct amount, which was 12½ tons. Then the records would indicate fuel consumption at the rate of 108 lb. per 1,000 ton-miles. In other words, the everyday variations in operating conditions over which the engineman has no control, have a more appreciable effect upon his individual fuel record than errors of as much as a ton in reporting fuel issues.

The elimination of operating factors that distort the rate of fuel consumption is more vital to individual records than an absolutely accurate coal measurement, yet in only a few instances has any real effort been made to eliminate the effect of the everyday variables. This will explain why expenditures for coal chute weighing or measuring devices have proved almost universally disappointing. The fault does not lie with the device, or even with its maintenance, as much as with those who do not know how or will not make the effort to use these fuel measurements systematically and apply equally exacting measures to the other factors which enter into every individual fuel record.

The Object of an Individual Fuel Record

The object of an individual fuel record is not to account for all the fuel used. That is a function for the auditor, and the fuel supervisor who is more concerned with the manner in which fuel is being accounted for than the manner in which it is actually used is wasting his own time and the company's money. What is desired, and all that can be expected of an individual fuel record, is a correct indication of relative fuel efficiency. To determine the relative fuel efficiency of enginemen and locomotives it is obviously essential

to compare their performance under uniform conditions. This calls for a segregation of individual records by runs and locomotive types as well as by class of service. It also calls for elimination from the record of runs made under abnormal conditions. Distinctions in regard to runs and locomotive types are commonly observed by grouping the monthly performance records accordingly, but variations from the average speed and tonnage of each group are not so easily accounted for.

Bearing in mind the object of an individual performance record, it may be stated that, in principal, it is better to base this record upon three trips conducted under normal operating conditions than upon 30 trips where unusual operating conditions obscure the real efficiency of the enginemen and locomotives. The elimination of those runs on which unfavorable operating conditions prevail can be made the basis for a very practical individual performance record by determining for each trip, the freight train ton-miles or number of passenger cars handled, the quantity of fuel used, the time between terminals and the fuel consumption per 1,000 freight ton-miles or per passenger car-mile. With this record available for each locomotive it is possible for those in charge of this work to eliminate from the monthly average any run where unfavorable operating conditions are found to prevail. It is a mistake to regard this work as a purely clerical undertaking, and any system of individual fuel records not closely supervised by someone who knows the conditions under which the fuel is being used is an expensive farce.

Equated Fuel Performance Would Eliminate Variable Factors

Where the performance on all runs is included in the monthly fuel record some effort should be made to equate the individual averages to correspond to uniform operating conditions, since the real importance of these factors is neither understood by enginemen nor generally appreciated by those officers who are expected to make use of these figures. An equated fuel performance record is one in which the effect of unusual variations from the average time and tonnage are neutralized by an equation. It is possible to determine by actual test the effect upon fuel consumption of various reductions in tonnage or increases in the time between terminals and to apply a factor derived from these observations to each individual fuel record.

Referring to the example cited in the foregoing, let us apply the same figures to the performance of a group of locomotives for which the monthly fuel consumption averages 100 lb. per 1,000 ton-miles with trains averaging 2,000 tons and 10 hours between terminals. Suppose now, that some tests are made with the same engine crews and locomotives which demonstrate an increase in fuel consumption to 110 lb. per 1,000 ton-miles as a result of reducing the average train tonnage to 1,500 tons or an increase to 112 lb. per 1,000 ton-miles when the average time between terminals is increased to 15 hours. Then, an allowance of 2 lb. per 1,000 ton-miles for each 100 tons reduction in train tonnage below 2,000 tons and an allowance of 2½ lb. per 1,000 ton-miles for each additional hour over the average of 10 hours between terminals would practically eliminate from the monthly individual records for this group, the effect of two variable factors which bear no relation to the skill of the enginemen nor the condition of motive power, yet exert a greater effect upon their fuel performance record than a continual overcharge of one ton of coal out of every ten tons issued.

Reliable Fuel Records Require Honest and Intelligent Effort

Objections to individual fuel performance records usually result from a failure to appreciate the relative importance of all the factors involved. Ninety-nine per cent of the argument against them is based upon the difficulty of measuring individual fuel issues accurately. Experience and extensive investigation have shown that men accustomed to handling locomotive fuel can estimate with surprising accuracy the quantity of coal required to fill the locomotive tender upon arrival at a terminal. Where a conscientious effort is made to estimate fuel issues, it is safe to say that the error will seldom exceed 10 per cent. Moreover, the estimated quantity may be either more or less than the exact amount of fuel, and such errors as occur tend to neutralize each other. It is not likely that the quantity of coal issued to the locomotive would be continuously over-estimated, any more than always under-estimated, if an honest and intelligent effort is made to report these quantities correctly. If honesty and intelligence are not applied in this case, what assurance is there that fuel issues would be reported honestly and carefully when accurate measuring means are provided?

Local officers should be required to investigate the performance of any engineer whose name appears at or near the foot of the fuel record more than two months in succession. There are but three contributing causes to consider. Either the engine crew is at fault and needs instructive supervision, or the condition of motive power is responsible and in need of repair, or there is some obvious discrimination in the fuel charges. Investigation along these lines will either terminate the deliberate overcharges or lead to the source of an actual fuel loss. It is a mistake to assume that the value of an individual fuel record is confined to its effect upon the enginemen. If full advantage is taken of these records they are of equal, if not greater, benefit to the officers directly responsible for fuel economy.

Traveling Fuel Auditors

No treatise on the subject of individual fuel performance records would be complete without quoting Eugene McAuliffe, to the effect that the poorest individual record is better than none at all. Nevertheless, it must be admitted the best individual record leaves much to be desired, both from the standpoint of the engineman and fuel supervisor. What can be done toward making the individual fuel performance record a more sensitive, hence more effective instrument?

Knowledge of all conditions affecting the individual fuel performance of an engineman can only be gained from first hand observation. It would be impossible to witness the performance of all enginemen, but let us consider what could be accomplished with a group of "traveling fuel auditors" comprising from four to six young men, one of whom would be in charge of the group. Select an engine district at random, dividing the squad between two adjacent terminals and an intermediate coaling station. The two men stationed at each locomotive terminal would be required to personally inspect every locomotive on arrival and immediately preceding its departure. In each instance the quantity of coal, as well as its general character, would be carefully noted. The condition of the fire upon departure and arrival of locomotives would also be observed, together with other features that bear directly upon fuel efficiency. The time of departure and arrival of each locomotive, as well as extent of delays on road, the tonnage handled, etc., would be ascertained directly from the dispatcher's train sheets. From this information, an individual fuel performance record, complete in almost every essential detail, would be available. It is not suggested that these records be published daily, but that at the end of a two or three weeks' period, at which time the traveling fuel auditors would be dispatched to some other engine district. Not only the duration, but the sequence of visits by this "flying squad" would be unknown except to those directing this work.

Auditors Could Make Effective Records

It is not so important to know that an engineman is at the top or the foot of the fuel efficiency list, as to know why he

is there. A check of locomotive performance, such as suggested, would disclose conditions on any district that would surprise the local fuel supervisor. It would develop facts regarding locomotive maintenance that would make any master mechanic sit up and take notice. It would reveal fuel losses due to poor dispatching and other operating causes that would startle the average superintendent. Enginemen could not question the accuracy of the fuel performance statement compiled in this manner.

This statement would be compiled by the traveling fuel auditors and posted prior to their departure. Upon succeeding visits to this district, the fuel consumption averages determined by a similar check of locomotive performance would be compared with the previous averages. One concrete example of improvement in fuel efficiency on a single district will do more toward establishing the value of a fuel department in the eyes of the management, than all the general averages ever concocted.

Why do enginemen lose interest in individual fuel performance records soon after they are inaugurated? Partly because no special effort is made to interest them, but largely because they become monotonous. It will be observed that the intermittent character of the individual fuel records described might, in itself, prove advantageous, since it would abolish the monotony of a monthly report. Furthermore, the expense involved would be considerably less than required for any adequate system of monthly records. No reports, except those compiled locally by the fuel auditors as they journeyed from district to district, would be necessary. At most, six men would be required for this work, two at each terminal, to check locomotives arriving and departing, day and night, and in addition, two men to observe general conditions by riding locomotives and checking fuel issues at intermediate coaling stations. Where no intermediate coaling stations were involved it would be possible for six men to check locomotive performance on two adjoining districts simultaneously.

Individual fuel performance records are the most misunderstood feature of fuel economy work upon the railways. It takes a careful and impartial analysis of individual fuel performance to indicate which enginemen are most in need of instruction and what locomotives are most in need of attention. An individual fuel performance record is not a substitute for supervision and instruction in fuel economy, but it is fundamental to this work.

Discussion

The trend of the discussion corroborated the author of the paper as to the necessity of having detailed information both as to fuel consumption and operating conditions, if real economy in fuel consumption is to be effected. It was brought out that the various efforts to interest enginemen and firemen on the Southern Pacific in the economical use of fuel could not be carried out without the information furnished by individual fuel records. While the records themselves do not primarily interest the men, it is on the basis of the records that men are selected to represent the railroad at the convention of the association and at bimonthly fuel committee meetings on the various divisions.

A description of the Chicago Great Western system of checking fuel performance, developed that it was founded on the principle referred to by the author as "equated fuel performance." Potentials determined by road tests have been set up for each class of power and each service. These are shown on the train sheet and on a report compiled daily by the dispatcher each trip is rated by a comparison with the potential for the locomotive and service involved.

It was suggested that the flying squadron of fuel auditors described by the author, might first be used in determining for each division superintendent approximately what his fuel budget should be under various conditions. Once established, a variation from such a budget would enlist the interest of the superintendent in finding out the causes of the variation.

The Other Ten Per Cent

By R. S. Twogood

Assistant Engineer, Southern Pacific Company

About 10 per cent of the total railway fuel consumption is for railway power, heating, shop, roundhouse, and pumping plants, coaling stations, and for other miscellaneous purposes. This 10 per cent amounts to about 17,000,000 tons a year. The percentage of waste of this item is high because very little attention has been given to the proper design and supervision of the average small boiler plant. The experience of the Southern Pacific during the last few years indicates that, as a very conservative figure, 25 per cent of this fuel can be saved by proper design and supervision.

In order to discuss this subject in detail it is necessary to make a general classification of stationary plants:

(a) Large electric generating plants.
(b) Large boiler plants.
(c) Shop boiler plants.
(d) Small heating, power and pumping plants.

Very few plants of Classes (a) and (b) are required by the railroads. Because of the high cost and the importance of operation of these plants, high class engineers and operators are necessary. Usually these plants have the many instruments required to permit the continuous checking of efficiency. A saving of one or two per cent of the fuel is worth going after. Savings of 10 per cent are hard to find.

But shop boiler plants are just a part of a large shop. The total cost of operating the boilers may not be over 10 per cent of the total cost of operating the shop. The details of the boiler plant may be overlooked in the large organization. The shop superintendent may or may not be an engineer; he may not realize the possible loss due to poor design and supervision. The size and operating conditions of the plant will determine the importance of increased supervision.

The small heating, power, and pumping plants are the most neglected of all plants. Such plants are found everywhere. The percentage of fuel waste is high. There is almost no supervision. The plants never were designed; they were just built. They are difficult to check. For them, standards in design or operation simply do not exist.

The standard test codes of the American Society of Mechanical Engineers are the recognized standards for the determination of plant efficiency. Special engineers thoroughly acquainted with power plant design and operation are required if worth-while results are to be expected. Needless to say, such tests cost money, and unless the results produce savings that are greater than the expenditure, the cost of steam has not been reduced.

As a rule, the smaller the plant the larger the percentage of needless waste. Especially in the railroad business, we are forced to operate a great number of small plants where the fuel waste is known to be very high. There are no standard test codes that can be used economically to continually check these small plants. The engineering profession, in its desire to build the comparatively few plants with high efficiency, has overlooked the tremendous waste of fuel in the thousands of small plants.

The railroad business is transportation. There are many departments in a railroad organization, and each department is held directly responsible for its phase of the work. The final results of the department are more important than the details. The cost of operating these plants is a small percentage of the cost of running the department, but when shown as a separate item, it never fails to stagger those who can appreciate the facts.

About four years ago the Southern Pacific organized a fuel conservation committee. This committee consists of a representative from each engineering department. The needs

of each department are, therefore, taken care of without the duplication of equipment.

Many complete boiler plant tests of the larger plants have been made to determine the need for general repairs or additional capacity, and also to study power requirements. A general inspection of power plants can but impress one with the fact that many plants are forced to the limit, while others are underloaded; also that some plants are equipped with a few large size boilers, and others with many small boilers. Few plants have the proper number and size of boilers to give the best operating conditions. A study of power requirements should permit of proper plant design so that economical and good service can be given.

Our committee has made a great many tests of small plants in connection with our work on standardization. Atomization of liquid fuel, and drafting oil-fired furnaces have led to endless discussion. There are hundreds of oil burners on the market and every burner salesman claims a fuel saving of from 15 to 50 per cent over any other burner. The small boiler plant operator is at the mercy of these salesmen. The Southern Pacific operates about 125 boiler plants. The possible savings or loss due to the use of various burners in a large number of plants makes a study of burners very much worth while. A 150 h.p. boiler was therefore equipped for testing. Before many tests had been made it was evident that the drafting was just as important as the burner. Therefore, in all of the tests the burners and drafting have been tested together. In seventy-five tests on the same boiler the net furnace and boiler efficiency has varied from 45.5 to 75.5 per cent. Many factors have been determined and certain burners have been put on the approved list. It is now possible to lay out a furnace with reasonable assurance that the plant will operate as desired.

Steam and air lines underground are soon forgotten. Most insulating material is porous. It is difficult to keep pipe covering dry underground, and wet pipe covering ceases to have much insulating effect. Compressed air is one of the most expensive materials used around the shop. Air lines should be given frequent soap tests. Therefore, except for very special cases, new steam and air lines are being installed above ground. The steam lines are well insulated, and the insulation weatherproofed where installed out of doors.

Fuel oil and water meters are gradually being installed in the larger plants. This permits of frequent evaporation check of plant and operators. Where such meters are installed a simple evaporation test is made at least once per month. These monthly tests are simple, inexpensive, give a frequent check of plant operators and keep the men on the alert to excel the other fellow.

In one plant the fuel saving in July as compared to May was over $11.00 per day, due to the increase in equivalent evaporation. The meters cost $650.00 installed. The savings paid for the meters in two months. The water meters have given some trouble; the hot boiler feed water is hard on the meters and they must be calibrated and repaired frequently.

A thorough inspection is made of every plant at least once a year. A division official accompanies the fuel committee during this inspection. The need of repairs or additional equipment is determined, and the work programmed for the year. In order to express the condition of a plant in simple form, and to compare one plant with another, a rating form has been worked out. To express the condition of a plant as "Excellent," "Good," "Fair," or "Poor" is not enough, because it does not show what must be done to improve the condition. For this rating, therefore, the important details of a boiler plant were listed, and each detail given a weight about in proportion to its importance. It is realized that a good fireman or engineer is an important element in any plant. However, no weight was given for the fireman or engineer because his efficiency is reflected in the details. Any rating must be as mechanical as possible so that a plant would receive about the same rating if made by several independent inspectors.

An analysis of this form shows why a plant rates as it does, and what must be done to raise the rating. Some items can be put up to the engineer for correction, but others are strictly up to the supervisor. Efficient plants are only obtained by the co-operation of all concerned. The rating of a plant is often used as an argument when requesting authority for expenditures.

To increase the incentive for fuel conservation, the ratings of plants are given wide circulation. A list of all plants on the system, showing the rating of each plant, with the highest ratings at the top of the list, is sent to each plant annually. Plants are also grouped by divisions, and averaged so that the standing of divisions can be determined. All plants receiving a rating of 80 or better are classed as Premium Plants and are issued a framed certificate, signed by the committee, showing the rating and the reasons therefor. The results have been very interesting. For the year 1921 there were 10 premium plants, the average rating of the 10 plants being 85.1. For the year 1922 there were 26 premium plants with an average rating of 87. So that there was not only an increase in the number of premiums, but also in the average rating of premiums. The average rating for the System for the year 1921 was 66.72, and for the year 1922 it was 70.24.

A plant may be in perfect mechanical condition; it may have the latest, most efficient equipment; but without a trained operator interested in his job, high efficiency cannot be expected. The education of the operator, then, is without doubt the most important single detail in connection with fuel conservation. Instruction is always given during plant inspections, but it is hard to see more than one of the three operators during a plant inspection. An inspector may adjust dampers, burners, etc., but the fuel that can be saved in two hours is small. The large fuel saving comes when the operator absorbs the instruction given him and continues the saving day after day. A fireman cannot be made in two hours; so continual savings cannot be expected unless the training is consistently followed up. Firemen instructors to stand watch with the regular operators several days at a time, make big reductions in the fuel bill. Personal instruction followed by carefully prepared printed matter will hold the fireman's interest. A loose-leaf instruction book on power plants is now being issued by the committee. It is being sent out a few sheets at a time. In the end it is expected to cover the latest standards in equipment and operation and the fundamentals of steam engineering.

A review of the subject of small boiler and heating plants emphasizes the importance of:

(a) Developing standards in design and operation.
(b) Standard test codes and ratings adaptable to the small plants.
(c) Education.

This subject is of great importance to everyone of us, because each one must pay his share of the loss that increases the cost of producing every article requiring power. Small corporations cannot afford to undertake this problem; large corporations cannot afford to overlook it. But they do! It is, therefore, recommended that a standing committee be appointed to study this problem. It might also be advisable to co-operate with the American Society of Mechanical Engineers, so that advantage might be taken of the vast amount of work already completed by that society.

Discussion

On motion, the author's suggestion that a standing committee be appointed to study the problem and recommend methods for effecting fuel economy at railway power plants, was adopted by the association.

Abuse of the Superheater as a Fuel Saver

In a paper on this subject, Bard Browne, service engineer, Locomotive Superheater Company, pointed out that after the superheater has been carefully proportioned to produce given results with a certain class of locomotive, there is no adjustment possible in service and its performance depends entirely on boiler and grate performance; that changes from normal boiler performance create steam and gas conditions which cannot be pre-calculated and that changes made in the proportions of the superheater in repairing it destroy its ability to produce the results expected from it. Some of the worst abuses pointed out by Mr. Browne are reductions in the lengths of units, serious restriction of the area of the steam passages caused by improper repair of return bends and the restriction of the flow of gases through the superheater flues by enlargement of the return bends made in these same repairs. The fuel saving capacity of the superheater, in normal condition, has been established and generally accepted by the railroads. Mr. Browne's paper points out the necessity for much greater attention to maintaining the superheater in its normal condition than has generally been given to it, if the superheater is actually to render the continuous service of which it is capable, and not live on its reputation.

The discussion indicated a growing appreciation of the importance of attention to the details of superheater maintenance on the part of many of the members. The use of the pyrometer as a means of bringing to light improper conditions was also urged by a number of the members.

Other Reports and Papers

Committee reports were presented on the following subjects: Front Ends, Grates and Ash Pans, Fuel Accounting, Distribution and Statistics, and Firing Practice. Papers were also read on Economy in Heating of Stations and Buildings, by Professor R. W. Noland, Purdue University; Incentives for Promoting Fuel Economy, by O. S. Beyer, Jr., consulting engineer, Labor Bureau, Inc., and Refractories for Oil Burning Locomotives, by J. C. Martin, Jr., vice-president Ætna Combustion Company.

Abstracts of some of these reports and papers will appear in later issues.

Prize Competition on Fuel Economy

Eugene M'Auliffe (Union Pacific) in a telegram to the president of the association, offered a cash prize of $100 for the best article on fuel economy submitted by an engineman, fireman, brakeman, conductor or switchman. The competition is to close July 1, and the president of the association together with the editors of the Railway Review and *Railway Age* are to act as judges.

During the convention a communication was received from the American Railway Association announcing the appointment of W. L. Robinson (Baltimore & Ohio) as the official representative of the Joint Committee on Fuel Conservation at the convention, and stating that the question of co-operation of the joint committee with the association was to be taken up in the near future.

Election of Officers

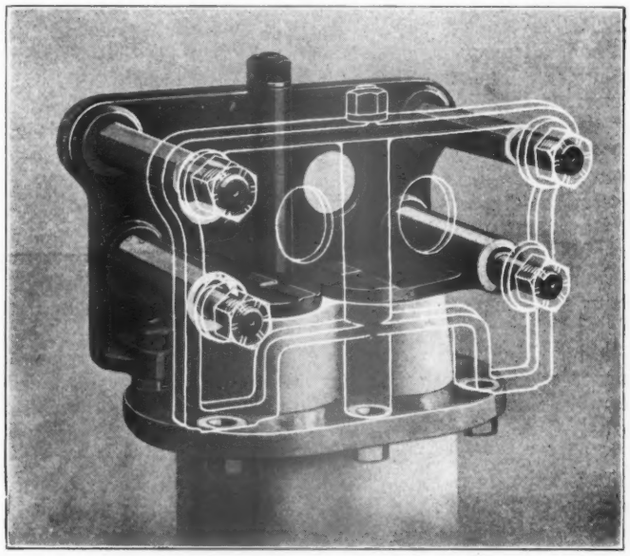
The following officers were elected to serve for the coming year: President, M. A. Daly (Northern Pacific); vice-presidents, J. W. Dodge (Illinois Central), P. E. Bast, (Delaware & Hudson) and J. R. Evans (Chesapeake & Ohio). J. B. Hutchinson (Pennsylvania) is the secretary-treasurer.

The new members of the executive committee are: J. E. Davenport (New York Central), H. T. Bentley (Chicago & North Western), E. E. Chapman (Atchison, Topeka & Santa Fe), C. H. Dyson (Baltimore & Ohio) and W. J. Capp (Denver & Rio Grande Western).

Detroit Automatic Exhaust Nozzle Covers

When steam is shut off and a locomotive is drifting, a partial vacuum is created by the movement of the pistons which acts to draw cinders and hot gases from the smokebox through the exhaust passages and into the valve chambers and steam cylinders. The heat burns the oil and destroys the lubrication on the walls while the cinders act as an abrasive to cut the packing and piston rings and produce carbonization which plugs up the passages. This is so generally recognized that engineers often drift with the throttle cracked open to destroy the vacuum when the locomotive is not fitted with special drifting valves.

To overcome carbonization the Detroit Lubricator Company, Detroit, Mich., has placed on the market the Detroit automatic exhaust nozzle covers. These covers are designed to provide a simple and inexpensive device which, without resort to drifting valves, will protect the cylinders and parts exposed to steam pressure and consequently increase the life of cylinders, valves, bushings, piston rings, rods and packing.



Phantom View, Showing Detroit Automatic Exhaust Nozzle Covers in Closed Position

The device consists of a pair of hinged clack valves or covers mounted in a suitable framework for attachment to the exhaust nozzle in the smokebox. These covers swing freely on hinge pins. When the engine is working the escaping exhaust steam holds the covers in an open position, thus allowing a free discharge. Immediately after the throttle is shut and the exhaust stops, the covers automatically close by their own weight and seal the nozzle against the entrance of hot smokebox gases and cinders to the valves and cylinders.

The covers are made of steel castings with their faces machined to fit the top faces of the nozzle tips. The hinge bearings are designed to prevent any accumulation of dirt or cinders from interfering with the free and automatic action of the covers. The side frames supporting the covers are steel castings arranged for mounting on the nozzle by bolts or studs. These frames carry the hinge bars and stops to prevent over-travel of the covers. In the majority of cases the framework is so designed that it can be attached by bolts or studs in the same location as the bolts for holding the tips onto the nozzles. As the design of exhaust nozzles and tips varies considerably on different locomotives, special patterns of covers and frames are furnished when necessary.

Freight Claim Division Meets in Montreal

THE FREIGHT CLAIM DIVISION of the American Railway Association held its thirty-second annual session in Montreal on May 29, 30, 31 and June 1. The attendance totaled 192, exclusive of proxies. The consideration of the reports of the committee on rules of order and the loss and damage and overcharge rules committees occupied the major portion of the session's time during the first two days.

The following officers were elected for the ensuing year: Chairman, J. B. Baskerville, Norfolk & Western; first vice-chairman, W. B. Kellett, Fort Worth & Denver City; general committee, E. Arnold, Canadian National; R. L. Calkins, New York Central; W. C. Fitch, Southern Pacific; H. C. Pribble, Santa Fe. New Orleans was chosen as the place of the next meeting to begin on the third Tuesday of April.

Wm. C. Fitch, freight claim agent of the Southern Pacific, Pacific System, the chairman of the division, opened the session. The principal speaker at the first meeting was Sir Henry W. Thornton, president of the Canadian National. Sir Henry professed slight knowledge of the technical work of the division, saying that his railroad work had been largely in the departments which caused the claims rather than in that which settled them. He made a plea for greater international co-operation and undertanding. He urged the freight claim people to look upon dissatisfied shippers as potential friends of the railroad and said that a man with a claim, if dealt with justly—even generously—by the freight claim department, would probably be a greater friend of the railroad than the shipper who never had occasion to present a claim. Mr. Fitch also stressed the importance of the position of the freight claim agent because of his dealings with the public and his opportunity to make friends for the railroads.

N. D. Maher, president of the Norfolk & Western and the representative of the Freight Claim Division on the board of directors of the American Railway Association, was scheduled to speak at the opening meeting but was unable to attend. R. H. Aishton, president of the American Railway Association, was likewise detained from attendance.

Resolutions of condolence at the death of four members—F. W. H. O'Meara (freight claim agent, C. & O.), W. H. Hancock (retired freight claim agent, U. P.), A. B. Thompson (freight claim agent, D. L. & W.) and R. L. Russell (vice-president, P. & R.)—were proposed by the memorial committee, and unanimously adopted, the secretary being instructed to send copies to the families of the deceased members.

The report of the secretary and that of the general committee were adopted without discussion. The report of the former disclosed the fact that the railroads during 1922 received 2,351,412 claims, a decrease of 10.7 per cent over the previous year, and that 1,105 claims were handled by arbitration committees and 186 by the appeal committee, an increase in the former of 70 per cent. The report of the general committee called attention to the decrease of 50.7 per cent in loss and damage for the first six months of 1922 as compared with the similar period of 1921.

A spirited discussion resulted from a proposal by H. C. Barlow (Erie) that the present arbitration and appeal committees be abolished and that the work be delegated to a salaried board of arbitration with three members giving their entire time to the work. He cited the effective work being done by the specialists in freight claim prevention and suggested that specialists in arbitration might show similar efficiency. Objection was raised on the ground that there would be no appeal from the decisions of the board, that there would be too much work for one board properly to perform and that the fees charged might not be sufficient to pay the expenses of the board. The proposal lost. A recommendation that a committee on jurisprudence be named to define the law for the committees was also lost.

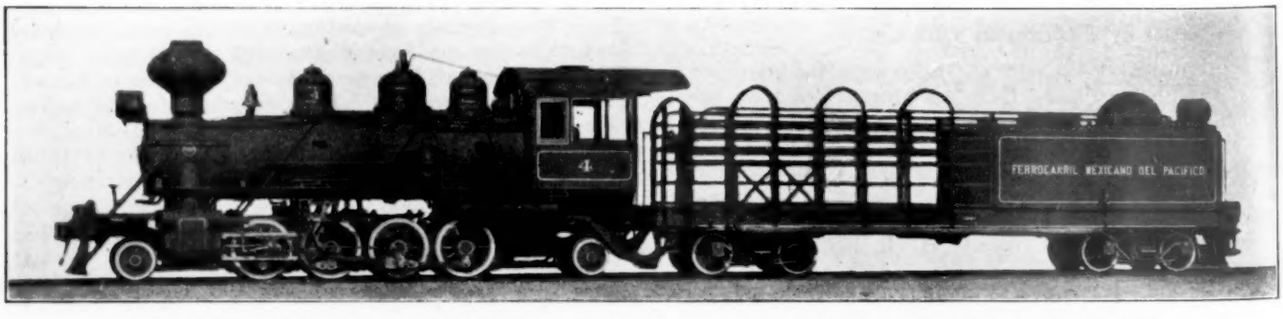
The division voted to admit freight claim prevention officers into full membership, the voting privilege to be exercised only on matters germane to their phase of freight claim work. A motion permitting the appointment of additional arbitration committees whenever the cases on hand overburden the existing committees was carried—these additional committees to serve only until the next annual meeting.

A proposal to require arbitrators to refuse cases which could not be disposed of within 30 days and another to make new rules of the division effective after 90 days, instead of immediately, were lost.

Later activities of the session include the following: The discussion of the report of the committee on freight claim prevention; addresses by J. H. Butler, manager of the loss and damage department of the American Railway Express Company, and Col. B. W. Dunn and E. Dahill, Jr., of the Freight Container Bureau; general discussion on damage to fruits and vegetables and the suggested general freight claim congress. These will be reported in a subsequent issue of the *Railway Age*.

Arrangements for the Montreal session were in the hands of a committee of which E. Arnold (C. N. R.) was chairman. The Canadian National and the Canadian Pacific provided free transportation for side trips around Montreal. The Canada Steamship Lines provided a four-day excursion to Quebec and Chicoutimi free of charge. A number of functions—a tour of the city, lunch on a C. P. R. liner, a theater party and a subscription dinner—were provided for the entertainment of the womenfolk.

FIVE PERSONS WERE KILLED, including a negro porter and four men said to have been riding blind baggage, when two Texas & Pacific passenger trains collided on May 24 between Cisco, Tex., and Putnam.



A Wood-Burner Built by the Baldwin Locomotive Works for the United Sugar Companies, Mexico

General News Department

By a fire at Mayville, N. Y., on May 24, the station of the Pennsylvania railroad was completely destroyed; estimated loss, including contents, $50,000.

For the Convention of the American Association of Railroad Superintendents at Kansas City beginning on June 13, the Chicago & Alton will run a special train, leaving Chicago on June 12 at 9 a. m. and St. Louis at 11:30 a. m. The trains will be consolidated at Roodhouse, Ill., and will arrive at Kansas City at 9 p. m. Those desiring to travel on this train should promptly advise J. Rothschild, secretary of the association, Union station, St. Louis, Mo.

Proposed plans for a new passenger terminal in Chicago were discussed at a conference on May 31 in that city between L. C. Fritch vice-president of the Chicago Rock Island & Pacific, G. A. Harwood, assistant to the president of the New York Central, and engineering officers of both roads. This project for taking care of all the roads now tenants in the La Salle street, the Dearborn street and the Grand Central stations contemplates the use of the site of the present La Salle street station.

H. E. Byram, president of the Chicago, Milwaukee & St. Paul, and T. C. Powell, vice-president of the Erie, are to be the guests of honor at a dinner to be given on the evening of June 6, at Springfield, Ill., by the Mid-day Luncheon Club of that city. L. W. Baldwin, president of the Missouri Pacific, will act as chairman of the evening, following the opening of the program by J. A. Barber, president of the Club. Archibald Fries, vice-president of the Baltimore & Ohio, will speak before the Mid-day Luncheon Club on June 20.

The East approach of the Atchison, Topeka & Santa Fe bridge across the Mississippi river at Ft. Madison, Iowa, was damaged by fire on May 24, and traffic was blocked until the 28th. This structure was used jointly for railway and highway traffic and the fire, which is thought to have started on the wagon bridge, destroyed 400 feet of the railway structure and approximately 2,500 feet of the highway approach. Trains were detoured over the Chicago, Burlington & Quincy from Ft. Madison, Iowa, to Galesburg, Ill., during the reconstruction which was completed on May 28.

Committee Membership for Coal Storage Investigation

The Federated American Engineering Societies has announced the personnel and plans of the committee which is to direct a national investigation of the storage of coal in co-operation with the U. S. Coal Commission, the Department of Commerce and the Bureau of Mines. The committee members are: H. Foster Bain, director, U. S. Bureau of Mines, Washington, D. C.; David Moffat Myers, former fuel administrator, New York; Perley F. Walker, dean of engineering, University of Kansas; W. H. Hoyt, chief engineer, Duluth, Missabe and Northern, Duluth, Minn.; S. W. Parr, professor of applied chemistry, University of Illinois; Edgar S. Nethercut, secretary, Western Society of Engineers, Chicago; Roy V. Wright, *Railway Age*, New York. The chairman is W. L. Abbott, chief operating engineer, Commonwealth Edison Company of Chicago.

General Foreman's Convention

A program of topics for discussion at the 1923 convention of the International Railway General Foremen's Association, which will be held at the Hotel Sherman, Chicago, September 4-7, has been arranged as follows: Topic No. 1—Shop Efficiency, Locomotive and Car Departments—(a) Apprentices, Training and Developing; (b) Relation of Foremen and Employees; (c) Methods of Increasing Efficiency of Supervisors and Employees; (d) Discipline; (e) Increased Output Per Man Hour. Topic No. 2—General Repair Methods and Maintenance of Valves, Valve Gears and Power Reverse Gears—(b) Engine, Tender and Car Trucks; (c) Air Brake Appliances on Passenger and Freight Equipment. Topic No. 3—General Repair Methods and Maintenance of Stokers, Coal Pushers and Air Firedoors. Topic No. 4—Shop Kinks, Locomotive and Car Departments. Subsidiary Topic No. 1—Welding Flanges on Driving Tires, Engine Truck and Tender Wheel Tires.

Wage Statistics for March

The number of employees reported by Class I steam roads for March, 1923, was 1,816,479, an increase of 246,321, or 15.7 per cent, over the number reported for the same month last year, and an increase of 32,924, or 1.8 per cent, over the number for February, 1923, according to the monthly summary of wage statistics published by the Interstate Commerce Commission. The total compensation in March, 1923, was 17.9 per cent greater than in March, 1922. In this period the earnings per hour for straight time for the employees reported on an hourly basis decreased from 58 cents to 56 cents an hour. The overtime earnings decreased from 82 cents to 81 cents an hour. Taking the straight time, overtime, and other compensation together, these employees reported on an hourly basis were paid an average of 61.8 cents per hour in March, 1922, and 59.9 cents in March, 1923. But, owing principally to an increase in the amount of overtime worked, they averaged 227 hours per employee in March, 1923, as against 215 in March, 1922, with the net result that their average compensation per month increased from $133 to $136 in the same period.

Number of Employees and Compensation by Months

Month	Number of employees	Total compensation
March, 1922 *	1,570,158	$216,704,408
April, 1922	1,578,133	203,413,071
May, 1922	1,628,228	216,672,028
June, 1922	1,685,414	222,932,689
July, 1922	1,467,824	193,571,244
August, 1922	1,594,074	224,976,644
September, 1922	1,708,591	238,735,394
October, 1922	1,804,315	255,514,000
November, 1922	1,820,463	249,286,713
December, 1922	1,788,590	247,672,515
January, 1923	1,779,516	250,051,786
February, 1923	1,783,555	230,416,541
March, 1923	1,816,479	255,447,764

* Excludes Detroit, Toledo & Ironton.

Annual Meeting and Dinner of the Western Railway Club

At the annual meeting of the Western Railway Club, held at Chicago, May 21, the following officers were elected for the coming year: President, Hal S. Ray, assistant to president, Chicago, Rock Island & Pacific; first vice-president, F. H. Hammill, assistant general manager, Chicago & North Western; second vice-president, George Hannauer, vice-president, Indiana Harbor Belt; secretary-treasurer, Bruce V. Crandall, editor, Chicago & North Western Railway Magazine.

The following are the members of the executive committee: W. G. Black, superintendent motive power, New York, Chicago & St. Louis; C. E. Fuller, superintendent motive power and machinery, Union Pacific; C. G. Juneau, master car builder, Chicago, Milwaukee & St. Paul; A. La Mar, master mechanic, Pennsylvania system; L. F. Kinnaird, superintendent motive power, Chicago & Eastern Illinois; E. B. Hall, superintendent motive power, Chicago & North Western, and E. J. Brennan, superintendent motive power, Chicago Great Western.

The club year closed with the annual dinner, held at the Drake hotel, Chicago, on Saturday evening, May 26, with 650 members and guests in attendance. F. W. Sargent, general solicitor, Chi-

cago & North Western, introduced the speaker of the evening, who was the Hon. Robert G. Cousins, of Iowa. Mr. Cousins's address dealt largely with the importance of defending American institutions, especially the court system, against the attacks of radicals.

Western Society of Engineers Elects Officers

In the annual election of officers of the Western Society of Engineers, Chicago, C. A. Morse, chief engineer of the Chicago, Rock Island & Pacific, was chosen president; E. T. Howson, western editor of the *Railway Age*, first vice-president; Horace Carpenter, consulting engineer, the Arnold Company, second vice-president; H. H. Clark, consulting engineer, third vice-president; G. W. Hand, assistant to the president, Chicago & North Western, treasurer, and M. M. Fowler, the General Electric Company, trustee for three years.

Pennsylvania Railroad Employees' Provident and Loan Association

This is the name of an organization for the benefit of the 250,000 officers and employees of the Pennsylvania Railroad System under which they may save money, increase their pensions, invest in homes and in the securities of the company and obtain emergency loans. It is to be started on July 1.

This association is organized by the employees, with the approval of the board of directors, in response to many requests for additional opportunities for saving. It is to be a co-operative association of officers and employees.

The purposes of the association are:

(a) To provide a safe and convenient means to systematically save money, and use such savings for any of the following purposes:

1. As a saving fund upon which suitable interest will be allowed;
2. In the purchase of increased pensions;
3. In the purchase, for investment, of stock, bonds, equipment trust certificates, or other securities of the railroad company.

(b) To afford a means by which its members may borrow money on easy terms for the purpose of acquiring homes.

(c) In cases of emergency to loan to members moderate sums on their own security.

Participation in the association is entirely voluntary. The railroad company has agreed to assist the association by the safekeeping of the funds, allowing interest on monthly cash balances and to pay the ordinary operating expenses of the association so long as the board of directors of the company may determine. The affairs of the association will be managed by a board of trustees. The 35 members of the advisory committee of the Voluntary Relief Department will act as an organization committee until their successors are chosen. The president of the association will be the vice-president in charge of personnel of the company [G. L. Peck]; the treasurer, the treasurer of the company [James F. Fahnestock], and the secretary will be the superintendent of the Voluntary Relief Department [E. B. Hunt]. Any employee, in the continuous service of the company for one year, may become a member.

The success of the association will depend chiefly upon the extent to which the men avail themselves of it; the larger the membership, the greater its usefulness. A brief summary of the benefits of the association shows:

Savings: Members may deposit for their own account any amount in even dollars in any month, making deposit directly with any station agency or by deduction from the payrolls. For the present the rate on savings deposits will be four per cent.

Pensions: In addition to the pension privileges now provided by the company, employees may provide for an increased pension to be paid to them in one lump sum or in monthly installments.

Building Loans: Members may secure building loans with the privilege of repaying the loans monthly at a minimum rate of $1 for every $100 borrowed.

Emergency Loans: Provision for loaning moderate sums immediately to employees to meet emergencies, on their own personal credit.

Purchase of Stock and Bonds: Stock or bonds or car trust certificates or other securities of the Pennsylvania Railroad Company or any of the companies in the System, by payment in full or by monthly payments of not less than 5 per cent of the cost.

Exhibitors at the Fuel Association Convention

At the meeting of the International Railway Supply Men's Association, held at Cleveland during the convention of the International Railway Fuel Association, May 21 to 24, inclusive, the following officers were elected: President, A. W. Clokey, American Arch Company; vice-president, A. C. Beckwith, Ohio Injector Company; secretary, Bard Browne, The Superheater Company, and treasurer, F. S. Wilcoxen, Edna Brass Manufacturing Company.

The following companies were exhibitors at the convention:

American Arch Co., Inc., New York.—Represented by J. T. Anthony, H. Darby, E. M. Ferguson, Wm. Haag, Guy M. Bean, A. W. Clokey, W. W. Neal, John P. Neff, W. L. Allison, R. J. Himmelright and M. R. Smith.

American Locomotive Co., New York.—Literature and photographs of locomotive reverse gear. Represented by G. P. Robinson and W. E. Corrigan.

Barco Mfg. Co., Chicago.—Power reverse gear, metallic engine tender connections, steam heat car connections, air reservoir joints, automatic smokebox blower fittings, and crosshead. Represented by C. L. Mellor and A. S. Lewis.

The Bird Archer Co., Chicago.—Boiler compounds. Represented by C. J. McGurn.

Dearborn Chemical Co., Chicago.—Represented by O. H. Rehmeyer.

Detroit Lubricator Co., Detroit, Mich.—Automatic exhaust nozzle cover. Represented by A. G. Machesney.

Edna Brass Mfg. Co., Cincinnati, Ohio.—Lifting and non-lifting injectors, hydrostatic and force feed lubricators, locomotive water columns and water gages. Represented by A. E. Curry, F. S. Wilcoxen and D. B. Joseph.

Fairbanks, Morse & Co., Chicago.—Coaling station literature.

Franklin Railway Supply Co., Inc., New York.—Represented by C. W. Floyd Coffin, J. L. Bacon, W. T. Lane, C. G. Carothers, H. M. Evans, J. L. Randolph, J. A. Taley, W. H. Holtom, W. H. Coyle and P. Weiler.

Fuller Lehigh Co., Fullerton, Pa.—Represented by Alonzo G. Kinyon.

Garlock Packing Co., Palmyra, N. Y.—Air pump cylinder head gaskets, reverse gear piston packing, air pump packing, cab cock packing, spiral packing, ring packing, etc. Reresented by C. E. Roscoe.

Hulson Grate Co., Keokuk, Ia.—Literature on locomotive grate. Represented by A. W. Hulson and J. W. Hulson.

Hunt-Spiller Mfg. Corp., Boston, Mass.—Shoes and wedges, crosshead shoes, piston valve packing, piston packing and piston ball rings. Represented by Victor W. Ellet and Chas. Galloway.

Jackson Shovel Co., Montpelier, Ind.—Locomotive scoops. Represented by Stanley J. White.

Johns-Manville, Inc., New York.—Power reverse gear packing cups, air brake expander rings, air pump packing, reverse gear piston rod packing, Mallet ball and slip joint packing and insulating material. Represented by J. D. Johnson.

Locomotive Firebox Co., Chicago.—Literature. Represented by C. A. Seley and L. R. Pyle.

Locomotive Stoker Co., Pittsburgh, Pa.—Model of stoker. Represented by W. G. Clark, A. C. Deverell, W. T. Capps, H. C. Huston, Eugene Prouty, A. L. Whipple, A. N. Willsie and H. C. Woodbridge.

Manning, Maxwell & Moore, Inc., New York.—Lifting and non-lifting inspirators, safety valves, gages, boiler checks, strainers, steam valves, and boiler tester, filler and washer. Represented by Geo. H. Bush, C. L. Brown and P. H. Ryan.

National Railway Devices Co., Chicago.—Pneumatic firedoor. Represented by E. J. Gunnison.

National Refining Co., Chicago.—Represented by S. C. Dinsmore, G. A. Johnson and O. E. Leath.

The Ohio Injector Co., Chicago.—Injector, lubricator, flange oiler and low water alarm. Represented by A. C. Beckwith, N. M. Barker and F. B. Farnsworth.

Pilot Packing Co., Inc., Chicago.—Air pump packing, throttle stuffing box packings, Mallet ball and slip joint steam pipe packing, Ripken drifting valve and grease lubricator for locomotive valves and cylinders. Represented by R. N. Sinkler.

Railway Age, New York.—Represented by C. B. Peck.

Railway Review, Chicago.—Represented by L. G. Plant, L. E. Kohler and M. B. Kohler.

Standard Stoker Co., Inc., New York.—Model of stoker. Represented by F. P. Roesch, G. Meyers, H. P. Norris and C. H. Peterson.

Superheater Co., New York—Feed water heater and pump, exhaust steam injector, superheated steam pyrometer. Represented by E. A. Averill, Bard Browne, W. A. Buckbee, G. Fogg, S. MacDonald, R. M. Ostermann, R. R. Porterfield and G. E. Ryder.

Worthington Pump & Machinery Corp., New York.—Sectional model of locomotive feedwater heater. Represented by J. E. Buckingham, D. R. Coleman, H. W. Hoit, J. M. Lammedee and Thos. C. McBride.

The following coal producers also had exhibits consisting of samples of coal taken from various mines, and photographs of mining operations: Maher Collieries Co., Lorain Coal & Dock Co., Valley Camp Coal Co., The Pursglove Coal Co. and Youghiogheny Ohio Coal Co.

Meetings and Conventions

The folllowing list gives names of secretaries, dates of next or regular meetings and places of meetings:

Air Brake Association.—F. M. Nellis, 165 Broadway, New York City. Exhibit by Air Brake Appliance Association.

Air Brake Appliance Association.—Joseph Sinkler, Pilot Packing Company, 122 South Michigan Ave., Chicago. Meeting with Air Brake Association.

American Association of Dining Car Superintendents.—L. A. Stone, C. & E. I. Ry., Chicago.

American Association of Engineers.—C. E. Drayer, 63 E. Adams St., Chicago.

American Association of General Baggage Agents.—E. L. Duncan, 332 So. Michigan Ave., Chicago.

AMERICAN ASSOCIATION OF PASSENGER TRAFFIC OFFICERS.—W. C. Hope, C. R. R. of N. J., 143 Liberty St., New York. Annual meeting, September 17, 1923, Montreal, Que., Canada.

AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—J. Rothschild, Room 400, Union Station, St. Louis, Mo. Next convention, June 13-15, 1923, Kansas City, Mo.

AMERICAN ELECTRIC RAILWAY ASSOCIATION.—J. W. Welsh, 8 W. 40th St., New York. Next convention, October 8-12, Atlantic City, N. J.

AMERICAN RAILROAD MASTER TINNERS', COPPERSMITHS' AND PIPE FITTERS' ASSOCIATION.—C. Borcherdt, 202 North Hamlin Ave., Chicago, Ill.

AMERICAN RAILWAY ASSOCIATION.—J. E. Fairbanks, General Secretary, 30 Vesey St., New York, N. Y.

Division I.—Operating, J. C. Caviston, 30 Vesey St., New York, N. Y.

Freight Station Section (including former activities of American Association of Freight Agents). R. O. Wells, Freight Agent, Illinois Central Railroad, Chicago, Ill. Annual meeting, June 19-21, St. Paul, Minn.

Medical and Surgical Section. J. C. Caviston, 30 Vesey St., New York, N. Y.

Protective Section (including former activities of the American Railway Chief Special Agents and Chiefs of Police Association). J. C. Caviston, 30 Vesey St., New York, N. Y.

Safety Section.—J. C. Caviston, 30 Vesey St., New York.

Telegraph and Telephone Section (including former activities of the Association of Railway Telegraph Superintendents).—W. A. Fairbanks, 30 Vesey St., New York, N. Y.

Division II.—Transportation (including former activities of the Association of Transportation and Car Accounting Officers).—G. W. Covert, 431 South Dearborn St., Chicago, Ill.

Division III.—Traffic, J. Gottschalk, 143 Liberty St., New York.

Division IV.—Engineering, E. H. Fritch, 431 South Dearborn St., Chicago, Ill. Next annual meeting, March 11-13, 1924, Chicago. Exhibit by National Railway Appliances Association.

Construction and Maintenance Section.—E. H. Fritch.

Electrical Section.—E. H. Fritch.

Signal Section (including former activities of the Railway Signal Association).—H. S. Balliet, 30 Vesey St., New York, N. Y.

Division V.—Mechanical (including former activities of the Master Car Builders' Association and the American Railway Master Mechanics' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill. Annual meeting, June 20-22, Orchestra Hall, 220 South Michigan Ave., Chicago. No exhibit in 1923.

Equipment Painting Section (including former activities of the Master Car and Locomotive Painters' Association).—V. R. Hawthorne, 431 South Dearborn St., Chicago, Ill.

Division VI.—Purchases and Stores (including former activities of the Railway Storekeepers' Association).—W. J. Farrell, 30 Vesey St., New York, N. Y.

Division VII.—Freight Claims (including former activities of the Freight Claim Association).—Lewis Pilcher, 431 South Dearborn St., Chicago, Ill.

Car Service Division.—C. A. Buch, 718 18th St., N. W., Washington, D. C.

AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W. Ry., 319 N. Waller Ave., Chicago. Next convention, October 16-18, 1928, Seattle, Wash. Exhibit by Bridge and Building Supply Men's Association.

AMERICAN RAILWAY DEVELOPMENT ASSOCIATION.—W. H. Hill, Agricultural Agent, New York Central, Chicago. Next meeting, 1924, Savannah, Ga.

AMERICAN RAILWAY ENGINEERING ASSOCIATION.—(Works in co-operation with the American Railway Association, Division IV.) E. H. Fritch, 431 South Dearborn St., Chicago. Next annual meeting, March 11-13, 1924, Chicago. Exhibit by National Railway Appliance Association.

AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—(See American Railway Association, Division V.)

AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—R. D. Fletcher, 1145 East Marquette Road, Chicago. Exhibit by Supply Association of the American Railway Tool Foremen's Association.

AMERICAN SHORT LINE RAILROAD ASSOCIATION.—T. F. Whittelsey, Union Trust Bldg., Washington, D. C.

AMERICAN SOCIETY FOR STEEL TREATING.—W. H. Eisenman, 4600 Prospect Ave., Cleveland, Ohio.

AMERICAN SOCIETY FOR TESTING MATERIALS.—C. L. Warwick, 1315 Spruce St., Philadelphia, Pa. Annual meeting, June 25-29, Chalfonte-Haddon Hall Hotels, Atlantic City, N. J.

AMERICAN SOCIETY OF CIVIL ENGINEERS.—Prof. J. H. Dunlap, 33 W. 39th St., New York. Regular meeting 1st and 3d Wednesdays in month, except July and August, 33 W. 39th St., New York.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.

Railroad Division.—A. F. Stuebing, Managing Editor, Railway Mechanical Engineer, 30 Church St., New York.

AMERICAN TRAIN DISPATCHERS' ASSOCIATION.—C. L. Darling, 1310-1311 Mallers Bldg., Chicago, Ill. Next convention, June 18, 1923, Chicago.

AMERICAN WOOD PRESERVERS' ASSOCIATION.—P. R. Hicks, Room 1146 Otis Bldg., Chicago. Next convention January 15-17, 1924, Muehlebach Hotel, Kansas City, Mo.

ASSOCIATION OF RAILWAY CLAIM AGENTS.—H. D. Morris, Northern Pacific R. R., St. Paul, Minn. Next annual meeting, May, 1924, West Baden, Ind.

ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W., Room 411, C. & N. W. Sta., Chicago. Annual convention, November 6-9, Hotel La Salle, Chicago. Exhibit by Railway Electrical Supply Manufacturers' Association.

ASSOCIATION OF RAILWAY EXECUTIVES.—Stanley J. Strong, 320 Munsey Bldg., Washington, D. C.

ASSOCIATION OF RAILWAY SUPPLY MEN.—A. W. Clokey, 1658 McCormick Bldg., Chicago. Meeting with International Railway General Foremen's Association.

ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—(See American Railway Association, Division I.)

ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—(See American Railway Association, Division II.)

BRIDGE AND BUILDING SUPPLY MEN'S ASSOCIATION.—John Nelson, Joseph E. Nelson & Sons, 3240 South Michigan Ave., Chicago. Meeting with convention of American Railway Bridge and Building Association.

CANADIAN RAILWAY CLUB.—W. A. Booth, 53 Rushbrook St., Montreal, Que.

CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 626 North Pine Ave., Chicago. Regular meetings, 2nd Monday in month, except June, July and August, Great Northern Hotel, Chicago.

CAR FOREMEN'S ASSOCIATION OF ST. LOUIS, MO.—Thomas B. Koeneke, 604 Federal Reserve Bank Bldg., St. Louis, Mo. Meetings, first Tuesday in month at the American Hotel Annex, St. Louis.

CENTRAL RAILWAY CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Meetings, 2d Thursday, January to November, Hotel Iroquois, Buffalo, N. Y.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S ASSOCIATION.—W. P. Elliott, Terminal Railroad Association of St. Louis, East St. Louis, Ill.

CHIEF INTERCHANGE CAR INSPECTORS' AND CAR FOREMEN'S SUPPLY MEN'S ASSOCIATION.—D. B. Wright, 34th St. and Artesian Ave., Chicago, Ill. Meeting with Chief Interchange Car Inspectors' and Car Foremen's Association.

CINCINNATI RAILROAD CLUB.—W. C. Cooder, Union Central Bldg., Cincinnati, Ohio. Meetings, 2d Tuesday in February, May, September and November.

EASTERN RAILROAD ASSOCIATION.—E. N. Bessling, 614 F St., N. W., Washington, D. C.

FREIGHT CLAIM ASSOCIATION.—(See American Railway Association, Division VII.)

GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—C. H. Treichel, Grand Central Station, Chicago. Regular meetings, Wednesday, preceding 3d Friday in month, Room 1414 Manhattan Bldg., Chicago.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—W. J. Mayer, Michigan Central R. R., Detroit, Mich. Exhibit by International Railroad Master Blacksmiths' Supply Men's Association.

INTERNATIONAL RAILROAD MASTER BLACKSMITHS' SUPPLY MEN'S ASSOCIATION.—George P. White, 747 Railway Exchange, Chicago. Meeting with International Railroad Master Blacksmiths' Association.

INTERNATIONAL RAILWAY FUEL ASSOCIATION.—J. G. Crawford, 702 E. 51st St., Chicago. Exhibit by International Railway Supply Men's Association.

INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—Wm. Hall, 1061 W. Wabash Ave., Winona, Minn. Annual convention, September 4-7, Hotel Sherman, Chicago.

INTERNATIONAL RAILWAY SUPPLY MEN'S ASSOCIATION.—C. W. Sullivan, Garlock Packing Co., 326 W. Madison St., Chicago. Meeting with International Railway Fuel Association.

MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 26 Cortlandt St., New York.

MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION.—(See A. R. A., Division V.)

MASTER CAR BUILDERS' ASSOCIATION.—(See A. R. A., Division V.)

NATIONAL ASSOCIATION OF RAILWAY TIE PRODUCERS.—J. S. Penney, T. J. Moss Tie Company, St. Louis, Mo. Next convention, January 17-18, 1924, Muehlebach Hotel, Kansas City, Mo.

NATIONAL ASSOCIATION OF RAILWAY AND UTILITIES COMMISSIONERS.—James B. Walker, 49 Lafayette St., New York. Next convention, Dec. 4, 1923, Miami, Fla.

NATIONAL FOREIGN TRADE COUNCIL.—O. K. Davis, 1 Hanover Square, New York.

NATIONAL RAILWAY APPLIANCES ASSOCIATION.—C. W. Kelly, People's Gas Bldg., Chicago. Annual exhibition at convention of American Railway Engineering Association.

NEW ENGLAND RAILROAD CLUB.—W. E. Cade, Jr., 683 Atlantic Ave., Boston, Mass. Regular meetings, 2d Tuesday in month, excepting June, July, August and September, Copley-Plaza Hotel, Boston, Mass.

NEW YORK RAILROAD CLUB.—Harry D. Vought, 26 Cortlandt St., New York. Regular meetings, 3d Friday in month, except June, July and August, at 29 W. 39th St., New York. Annual dinner, December 6, Hotel Commodore, New York.

PACIFIC RAILWAY CLUB.—W. S. Wellner, 64 Pine St., San Francisco, Cal. Regular meetings, 2d Thursday in month, alternately in San Francisco and Oakland.

RAILWAY ACCOUNTING OFFICERS' ASSOCIATION.—E. R. Woodson, 1116 Woodward Building, Washington, D. C. Next meeting, June 12-15, 1923, Hotel Jefferson, Richmond, Va.

RAILWAY BUSINESS ASSOCIATION.—Frank W. Noxon, 600 Liberty Bldg., Broad and Chestnut St., Philadelphia, Pa.

RAILWAY CLUB OF PITTSBURGH.—J. D. Conway, 515 Grandview Ave., Pittsburgh, Pa. Regular meetings, 4th Thursday in month, except June, July and August, Fort Hotel, Pittsburgh, Pa.

RAILWAY DEVELOPMENT ASSOCIATION.—(See Am. Ry. Development Assn.)

RAILWAY ELECTRICAL SUPPLY MANUFACTURERS' ASSOCIATION.—J. Scribner, General Electric Co., Chicago. Annual meeting with Association of Railway Electrical Engineers.

RAILWAY EQUIPMENT MANUFACTURERS' ASSOCIATION.—J. W. Foggs, Boss Nut Company, 1732 N. Kolmar Ave., Chicago. Meeting with Traveling Engineers' Association.

RAILWAY FIRE PROTECTION ASSOCIATION.—R. R. Hackett, Baltimore & Ohio R. R., Baltimore, Md.

RAILWAY REAL ESTATE ASSOCIATION.—R. H. Morrison, C. & O. Ry., Richmond, Va.

RAILWAY SIGNAL ASSOCIATION.—(See A. R. A. Division IV, Signal Section.)

RAILWAY STOREKEEPERS' ASSOCIATION.—(See A. R. A. Division VI.)

RAILWAY SUPPLY MANUFACTURERS' ASSOCIATION.—J. D. Conway, 1841 Oliver Bldg., Pittsburgh, Pa. Meeting with A. R. A., Division V. (No exhibit in 1923.)

RAILWAY TELEGRAPH AND TELEPHONE APPLIANCE ASSOCIATION.—G. A. Nelson, 30 Church St., New York. Meets with Telegraph and Telephone Section of A. R. A., Division I.

RAILWAY TREASURY OFFICERS' ASSOCIATION.—L. W. Cox, Commercial Trust Bldg., Philadelphia, Pa.

ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—P. J. McAndrews, C. & N. W. Ry., Sterling, Ill. Next convention, September 18-20, 1923, Chicago. Exhibit by Track Supply Association.

ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo. Regular meetings, 2d Friday in month, except June, July and August.

SIGNAL APPLIANCE ASSOCIATION.—F. W. Edmunds, Sunbeam Electric Manufacturing Company, New York City. Meeting with American Railway Association, Signal Section.

SOUTHERN AND SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, P. O. Box 1205, Atlanta, Ga. Regular meetings, 3d Thursday in January, March, May, July, September and November, Piedmont Hotel, Atlanta.

SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—J. L. Carrier Car Serv. Agt., Tenn. Cent. Ry., 319 Seventh Ave., North Nashville, Tenn.

SUPPLY ASSOCIATION OF AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—H. S. White, 9 N. Jefferson St., Chicago.

TRACK SUPPLY ASSOCIATION.—W. C. Kidd, Ramapo-Ajax Corporation, Hillburn, N. Y. Meets with Roadmasters' and Maintenance of Way Association.

TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, 1177 East 98th St., Cleveland, Ohio. Annual meeting, September, 1923, Chicago. Exhibit by Railway Equipment Manufacturers' Association.

WESTERN RAILWAY CLUB.—Bruce V. Crandall, 605 North Michigan Ave., Chicago. Regular meetings, 3d Monday each month, except June, July and August.

Traffic News

The Louisville (Ky.) Board of Trade has appointed a committee to establish close relationships with the local railroad freight agents and to suggest plans whereby co-operation may be made more effective.

The secretary of war has issued an order instructing military officers to make maximum shipments of non-perishable supplies during the summer, and directing their attention to the need of heavier loading of freight cars and to prompt unloading.

A special train made the trip from Chicago to Memphis, Tenn., a distance of 525 miles, over the Illinois Central, on May 23, in 10 hours and 10 minutes. The train left Chicago at 5.15 a. m. and arrived in Memphis at 3.25 p. m., an average rate of more than 51 miles an hour.

The latest published statement of the movement of ships through the Panama Canal shows that there were 420 commercial transits in the month of April, paying tolls amounting to $1,878,904, said to be nearly 80 per cent more than the amount collected in the month of April, 1922.

The Southern Railway carried a total of 17,668,605 passengers during 1922 without a single fatality to any passenger as the result of an accident to a train or negligence on the part of the railroad. Four passengers were killed as the result of their own acts in violation of safety rules.

The Chicago & North Western will put into service on June 14 its Wisconsin Lake Special, a solid all-steel fast overnight train to the lake and resort region of northern Wisconsin. The train will leave Chicago daily, except Sunday, at 7 p. m., and arrive in the northern Wisconsin woods the next morning.

The Southern Pacific, in following the program of the American Railway Association to secure the highest possible transportation efficiency during 1923, has reduced its locomotives in need of repairs on May 1 to 14.6 per cent and its freight cars on the line in bad order to 4.9 per cent. During March the average miles per freight car per day was 42.9 and the average car load was 27.6 tons.

The department of tours maintained by the Chicago & North Western and the Union Pacific, will operate 31 personally escorted all-expense tours to Yellowstone and Rocky Mountain National Parks, with added stops in Salt Lake City, Ogden Canyon and points in Colorado. Those tours will leave Chicago every Saturday during the season, commencing June 16, also every Monday and Thursday during July and August.

A complaint has been filed by the Washington State Department of Public Works calling for an investigation of the rates, tariffs, operation, rules, regulations and all other pertinent features of the auto-freight business in that state. The complaint is directed against the Western Washington Motor Freight Association and its immediate cause was the filing of a local and joint freight tariff and a time schedule by the Western Washington Motor Freight Association, naming class and commodity rates between points in western Washington.

The Northwestern region of the Pennsylvania has brought its average daily freight car mileage for the month of April up to 27.65, which is the highest on record since 1920. The average mileage for April for all Pennsylvania lines was 23.70 compared with 17.25 for April, 1922; 16.48 in 1921 and 14.48 in 1920. During April the number of freight cars awaiting repairs was cut to 5.6 per cent for the system and to 3.2 per cent for the Northwestern region, while the number of locomotives in the Northwestern region needing repairs was cut to 14.5 per cent.

To reduce the losses to shippers through delays to trucks traversing downtown districts of Chicago, and in discharging and receiving freight at freight houses, the Freight Traffic Committee of the Chicago Association of Commerce has suggested the establishment of universal freight stations on the north and northwest sides of the city at which freight can be received from and delivered to any railroad. With a view of determining to what extent such facilities, if established, would be used, the association has sent questionnaires to receivers and shippers asking, among other things, an expression as to the best location for a universal freight station, whether such a station would be patronized and to what extent.

At the annual meeting of the Transportation Club of Jackson, Mich., J. J. Lynch, traffic manager of the Hayes Wheel Company, was elected president; W. P. Hobart, agent of the American Railway Express Company, was elected vice-president; J. C. Holzworth, traffic manager of the American Oil Corporation, was elected secretary, and W. R. Kline, chief clerk of the Michigan Central was elected treasurer. Directors elected were: J. C. Graham, manager of the Jackson Traffic Bureau; F. C. Riley, freight agent of the Michigan Central; H. A. Griggs, traffic manager of the Earl Motors, Inc.; M. S. Hatch, passenger agent of the Michigan Central, and E. H. Leimbach, freight agent of the New York Central.

The K. C. M. & O. in Mexico

Regular train service will be restored over 75 miles of the Chihuahua division of the Kansas City, Mexico & Orient beginning June 2. Trains have not been operated over this division for 11 years, and this portion of the line has been only lately put into condition for use, with the assistance of the Mexican government. Negotiations are now under way for further federal aid in completing the repair work on the remainder of the division.

The National Container Association

This is the name of an association organized at a meeting of members of the Container Club, the National Association of Corrugated and Fibre Box Manufacturers, and other manufacturers of containers at a meeting held at the Drake hotel, Chicago, on May 22 and 23. The activities of the two other associations will be continued and will include research work at the Mellon Institute, Pittsburgh, and at a testing and designing laboratory in Chicago, as well as service in statistical, inspection, traffic and classification matters. The new association will correlate these activities, and eliminate duplication of effort. F. J. Kress, Pittsburgh, Pa., was elected president of the new association; J. L. Barchard, of the Hummel & Downing Company, Milwaukee, Wis., vice-president; G. R. Browder, general manager, and B. C. Tamlin, secretary and treasurer. The affairs of the association will be directed by an executive committee composed of F. J. Kress, J. L. Barchard, J. P. Brunt, vice-president of the Midwest Box Company, Chicago; J. B. Fenton, president of the Buffalo Box Factory, Buffalo, N. Y.; George Gair, president of the Robert Gair Company, New York; C. W. Gaylord, president of Robert Gaylord Company, St. Louis, Mo.; W. S. Goodwillie, president of the Atlas Box Company, Chicago; Irving Hill, manager of the Lawrence Paper Manufacturing Company, Lawrence, Kan., and Samuel Samuels, president of the American Corrugated Paper Products Company, New York. The executive offices of the new association will be in room 638, Transportation building, Chicago.

Chicago Traffic Club Opposes Further Agitation

The Traffic Club of Chicago has written letters to the President of the United States and to the chairman of the Interstate Commerce Commission calling on the commission to curb misrepresentation of railroads. In one letter to the President, the club expresses its opinion that in order to reach normality the railroads should be allowed freedom to further their improvements unhampered by public agitation or legislation for the next 12 months at least. The president is requested to refrain from discussing the transportation situation on his tour of the country unless it is to point out the improvements that have already been made or will be made.

Another letter to the President deals with a press report, to the effect that the administration might run its merchant ships on its own account instead of through managing agents, as heretofore. The club expresses opposition to such action because it would be disastrous to the American merchant marine.

The letter to the Interstate Commerce Commission concerns misrepresentation and selects for an example an article published in the Iowa Labor News of February 22, entitled "Where Do Millions Go in Railroading?" The club requests the commission to investigate this article and call the publisher of the Iowa Labor News to account.

Commission and Court News

State Commissions

The Public Service Commission of Alabama has notified the railroads of the State that under the Act of 1915, passenger cars must be properly screened before July 1. Rules, under this law, requiring suitable screens for both doors and windows, were prescribed by the commission many months ago; but, it is said, the majority of railroads have ignored the law.

Court News

May Remove Rails from Abandoned Roadbed

Where the operation of a railroad has been permanently stopped, the Circuit Court of Appeals, Fifth Circuit, holds that there is no presumption of a purpose to abandon the rails and fastenings thereon, and a purpose to abandon the roadbed evinces no purpose to abandon such rails to the owners of the fee, claiming under a provision in conveyances of land for a right of way, that, should use cease, the title should revert.—Jones v. Southern, 285 Fed. 19.

Burden of Proof of Prescriptive Right in Action for Overflow

The Tennessee Supreme Court holds, in an action for damages from water backed up owing to an insufficient culvert in a railroad embankment, that the railroad, to show a prescriptive right, must prove that at some period, more than 20 years before plaintiff's cause of action arose, the embankment and culvert actually caused plaintiff's land to overflow, and that this condition continued throughout the period.—Davis v. L. & N. (Tenn.), 244 S. W. 483.

Safety Appliance Act Protects Employees Crossing Between Cars

The Circuit Court of Appeals, Second Circuit, holds that the Safety Appliance Act's provision as to safety couplers was not limited to the case of an employee in the act of coupling or uncoupling, but covers cases where it can be shown that the proximate cause of the injury was a defective coupler, which permitted cars to run wild and injure men crossing between cars while lawfully performing their duty.—Keenan v. Director General, 285 Fed. 286.

Delay in Presenting Demurrage Bill Prejudicial—Carrier May Sue

The fact that shipments are unauthorized, and that the consignee has done everything possible to prevent them, will not justify its refusal to pay demurrage charges, if it accepts and unloads the cars. Failure of the carrier to make present demand for such payment will not constitute waiver or estoppel; and it is no defense that the consignee could and would have protected itself against loss by deducting the charges from its remittances to the shipper, but for the carrier's unnecessary delay in presenting the demurrage bill.—Davis v. Timmonsville Oil Co., C. C. A., Fourth Circuit, 285 Fed. 470.

Supreme Court of the United States

Discriminatory Reduction of Rates on Material for Governments May Be Prohibited

The Supreme Court of the United States holds that section 22 of the Act to Regulate Commerce does not deny to the Interstate Commerce Commission power to prohibit the reduced rates therein provided for, where they would result in unjust discrimination or in undue prejudice to interstate commerce.

The reduced rates prohibited by the commission (Tennessee Rates and Charges, 63 I. C. C. 160, 172) were intrastate rates on: Carload shipments of stone and gravel when for use in building public highways and consigned to federal, state, county and municipal authorities or their agents, which reduction had been made by an order of the Tennessee commission. The state of Tennessee and its commission brought suit to have the Interstate Commerce Commission's order set aside. From a decree declaring it void (284 Fed. 371) the carriers, the United States and the Interstate Commerce Commission appealed.

"Congress did not intend, by this provision concerning reduced rates and free transportation, to create an instrument by which the carrier was authorized, in its discretion, to subject interstate commerce to undue prejudice, or by which the state was empowered to compel the carriers so to do. The object of the section was to settle, beyond doubt, that the preferential treatment of certain classes of shippers and travelers, in the matters therein recited, is not necessarily prohibited. And in this respect its provisions are illustrative, not exclusive. It limits, or defines, the requirement of equality in treatment which is imposed in other sections of the act. By so doing, it preserves the right of the carrier theretofore enjoyed of granting, in its discretion, preferential treatment to particular classes in certain cases. It confers no right upon any shipper or traveler. Nor does it confer any new right upon the carrier.

"The grant of a lower rate on road material to a government, engaged in highway construction, may benefit the government without subjecting to prejudice any person, locality or class of traffic. But a lower rate may result in giving to a single quarry within the state all of the governmental business, so that competing quarries and localities within or without the state, or interstate traffic, would be prejudiced. That such undue discrimination does, and will, result from the order of the Tennessee commission was expressly found by the Interstate Commerce Commission. Its findings are necessarily conclusive, since the evidence on which it acted was not introduced in this suit." The decree setting aside the Interstate Commerce Commission's order was reversed. —Nashville, Chattanooga & St. Louis v. State. Decided May 21, 1923. Opinion by Justice Brandeis.

State Statute Requiring General Submission to Suit by Interstate Carriers Violates Commerce Clause

The Supreme Court of the United States holds that the Minnesota statute (Laws 1913, c. 218, p. 274; General Statutes, 1913, Section 7735), providing that: "Any foreign corporation having an agent in this state for the solicitation of freight and passenger traffic or either thereof over its lines outside of this state, may be served with summons by delivering a copy thereof to such agent," as applied to a company which does not own or operate any railroad in Minnesota in the circumstances mentioned below, violates the commerce clause and is invalid.

"It may be," the court says, "that a statute like that here assailed would be valid although applied to suits in which the cause of action arose elsewhere, if the transaction out of which it arose had been entered upon within the state or if the plaintiff was, when it arose, a resident of the state. These questions are not before us; and we express no opinion upon them. But orderly, effective administration of justice clearly does not require that a foreign carrier shall submit to a suit in a state in which the cause of action did not arise, in which the transaction giving rise to it was not entered upon, in which the carrier neither owns nor operates a railroad, and in which the plaintiff does not reside. The public and the carriers are alike interested in maintaining adequate, uninterrupted transportation service at reasonable cost. This common interest is emphasized by Transportation Act, 1920, which authorizes rate increases necessary to ensure to carriers efficiently operated a fair return on property devoted to the public use. Avoidance of waste, in interstate transportation, as well as maintenance of service, has become a direct concern of the public. With these ends, the Minnesota statute, as here applied, unduly interferes. By requiring from interstate carriers general submission to suit, it unreasonably obstructs, and unduly burdens, interstate commerce."

The court found no occasion to consider whether the statute, besides violating the commerce clause, also violated the Fourteenth Amendment. The railroad concerned was the Atchison, Topeka & Santa Fe.—Davis v. Farmers' Co-Operative Equity Co. Decided May 21, 1923. Opinion by Justice Brandeis.

Foreign Railway News

Statistics of British Railways in 1922

The following summary of statistics of operations of the British standard gage railways was prepared by the Bureau of Foreign and Domestic Commerce of the Department of Commerce:

	1922 £	1921 £	1913 £
FINANCES			
Capital invested in railways, all property and equipment (total)	1,164,700,000	1,161,000,000	1,131,500,000
Paid up, from capital issued and other sources (total)	1,115,000,000	1,110,100,000	1,095,800,000
Gross receipts	237,800,000	236,200,000	129,700,000
Gross expenditures	190,600,000	246,000,000	83,500,000
Net income, including government compensation and miscellaneous items	54,400,000	50,400,000	48,900,000
Actual operating revenue	219,000,000	217,700,000	119,900,000
Actual operating expenditure	174,400,000	226,600,000	75,800,000
Net operating receipts	44,660,000	[1] 8,900,000	44,100,000
Sources of operating revenue:			
Passenger traffic	101,600,000	105,700,000	54,500,000
Freight traffic	115,400,000	109,600,000	64,200,000
Miscellaneous	2,000,000	2,400,000	1,200,000
Total	219,000,000	217,700,000	119,900,000
EQUIPMENT			
Mileage of lines open:	*Miles*	*Miles*	*Miles*
First track	20,155	20,145	20,097
Second track	12,715	12,706	12,643
Other running track	3,765	3,754	3,549
Sidings	14,783	14,710	14,136
Total, in terms of single track	51,418	51,315	50,425
Rolling stock:			
Locomotives—	*Number*	*Number*	*Number*
On hand—Steam	24,204	24,299	23,545
Electric	81	84	83
Newly constructed	312	620	453
Condemned	410	498	[2]
Passenger cars—			
On hand	51,402	52,091	54,853
Constructed	562	1,071	997
Condemned, sold, etc.	1,251	994	[2]
Other passenger train cars—			
On hand	20,586	20,896	20,925
Constructed	269	337	475
Condemned, etc.	579	337	[2]
Merchandise, mineral, and special cars—			
On hand	720,783	738,360	733,369
Constructed	10,275	26,025	34,728
Condemned, etc.	27,852	27,789	[2]
Railway service cars on hand	50,477	50,562	48,149
OPERATING RECORDS			
Engine mileage:			
Train miles—Passenger	238,369,000	204,263,300	259,348,237
Freight	131,727,000	109,611,981	155,241,104
Shunting miles	116,205,000	102,699,643	132,112,733
Other miles	53,358,000	48,367,854	53,035,072
Total	539,659,000	464,942,778	599,737,146
Total engine hours in traffic	62,320,000	54,755,777	[2]
Passenger-traffic records:			
Number of passengers	1,186,470,000	1,217,578,532	1,184,195,402
Season-ticket holders	924,000	928,536	584,087
Average receipts per passenger journey	1s. 5.9d.	1s. 6.2d.	10d.
Average receipts per season ticket	£13 0s. 5d.	£12 17s. 9d.	£8 4s. 4d.
Freight-traffic records:			
[3]Tonnage of merchandise carried	301,418,000	217,708,815	364,162,358
Number of live stock	16,706,000	16,772,097	19,526,550
[3]Net ton-miles	16,172,643,000	12,660,167,861	[2]
Average length of haul-miles	53.32	58.12	[2]
[3]Average receipt per ton	7s. 6d.	9s. 10d.	3s. 6d.
Average receipt per ton-mile	1.71d.	2.076d.	[2]
Freight-car miles	4,552,705,000	3,780,298,852	[2]
[3]Average tons per freight-car load	5.52	5.20	[2]
[3]Average tons per freight-train load	127.55	121,17	[2]
[3]Net ton-miles per train-engine hour	955.34	900.57	[2]
[3]Net ton-miles per route-mile per annum	836,256	661,769	[2]

[1] Deficit. [2] Not available. [3] Ton = 2,240 lb.

Electrification of Buenos Aires Western

Electric operation in the Buenos Aires suburban zone of the Buenos Aires Western Railway was inaugurated on April 30. Electrification was adopted in order to give the railway's suburban trains access to the Subterraneo (subway) station at Plaza Once (near the Buenos Aires Western's Once Terminal) thereby facilitating the transfer of its passengers with the subway.

In all, 70 frack miles have been electrified in addition to miles of a freight tunnel leading from the Once Terminal to the Port of Buenos Aires. Power is produced in the generating station in the form of three-phase current, 20,000 volts, 25 cycles. At substations it is converted to direct current of 800 volts and transmitted through a third rail. Freight tracks will be equipped with overhead contact wires.

Chino-Japanese Railway Conference

TOKIO, The annual Chino-Japanese railroad conference is being held in Tokio this month. A large number of proposals are expected. By far the most important is a plan to start a through sleeping car service between Fusan, Chosen (Korea), and Peking for the convenience of foreign tourists.

The Chinese proposals include the addition of the Shantung Railway and the Kirin-Chanchung Railway to the system of the Chino-Japanese through service and the addition of several new stations on the Chinese roads to the list of the stations at which through service tickets are sold.

The South Manchuria Railway Company's proposals include several important innovations on the present system of transportation in this part of the Far East. One of them is to operate through sleeping car trains between Fusan and Peking. Another is to start a through freight train service between the South Manchuria Railway and the Peking-Mukden Railway of China. The company also proposes to include its shipping services between Dairen, Tientsin, Shanghai and other ports in the system of the Chino-Japanese through service. In order to enable foreign tourists in China and Manchuria to undertake more side trips in the interior the company proposes to enlarge side trip areas along the roads included in the system of the Chino-Japanese through service. The Japanese propose the establishment of a system of discounting tickets for students' parties.

In regard to the proposed operation of a through sleeping car train between Fusan and Peking an officer in the Japanese Department of Railways says that it was already proposed at the last conference and in principle accepted by all including the Chinese. But the Chinese declined to carry it out at once on the ground that prior to the operation of sleeping car trains they had to overcome some technical difficulties. This year it is hoped that they will endorse the proposal without reservation because it will greatly facilitate travel in the Far East.

The Railway Sanitary Code

The principal railroads operating in North Carolina have adopted the "Standard Railway Sanitary Code" of the United States Public Health Service, which was published in 1920 and which was approved by the United States Railroad Administration at that time. It is proposed to publish the regulations, to become effective on September 1 next, and abstracts of those provisions of the code which are of more particular interest to the public will be posted in passenger cars and at stations. Officers of the five principal railroads operating in North Carolina held, recently, a conference with the State Board of Health, and co-operation between the state and the railways was agreed upon.

This code, which has been adopted by the medical and surgical section of the American Railway Association, prescribes regulations for the transportation of persons having communicable diseases; for the provision of pure drinking water and ice at stations and on cars; for cleanliness in passenger trains and at stations, and for maintaining proper hygienic conditions in construction camps.

This code has been adopted by 26 of the 48 states; and, in compliance with its rules, the Pullman Company endeavors to reduce as much as possible the use of common hair brushes and combs in sleeping cars. In all of its cars operated east of Chicago and St. Louis, the rule has been adopted that there shall be in each car one hair brush and one comb, which will be furnished only on request, and only in territory where their use is not prohibited by law.

Equipment and Supplies

Locomotives

THE GREAT NORTHERN is asking for prices on 30 electric locomotives.

THE WASHINGTON RUN has ordered one locomotive from the American Locomotive Company.

LYON, HILL & COMPANY has ordered one Prairie type locomotive from the Baldwin Locomotive Works.

THE PORTLAND & SOUTHWESTERN has ordered one Mikado type locomotive from the Baldwin Locomotive Works.

THE SIERRA RAILROAD OF CALIFORNIA has ordered one Prairie type locomotive from the Baldwin Locomotive Works.

THE ATCHISON, TOPEKA & SANTA FE has ordered 30 Mikado type locomotives from the Baldwin Locomotive Works.

THE CHARCOAL IRON COMPANY OF AMERICA has ordered one Mogul type locomotive from the Baldwin Locomotive Works.

THE MISSOURI PACIFIC is having 100 locomotives repaired at the shops of the Morgan Engineering Works, Alliance, Ohio.

THE DENVER & RIO GRANDE WESTERN has ordered one superheated rotary snow plow from the American Locomotive Company.

THE UNION TERMINAL COMPANY, Dallas, Tex., has ordered one 0-6-0 switching type locomotive from the Baldwin Locomotive Works.

EMPRESA MATA LARANGERIA has ordered one Consolidation type locomotive from the Baldwin Locomotive Works for export to the Argentina Republic.

THE ALUMINUM COMPANY OF AMERICA has ordered 1, 8-wheel switching type locomotive from the American Locomotive Company for the Alton & Southern.

Freight Cars

THE STANDARD OIL COMPANY is inquiring for 10 coke cars.

THE MISSOURI PACIFIC is inquiring for repairs to 350 freight cars.

THE CHICAGO, MILWAUKEE & ST. PAUL is inquiring for repairs to 300 freight cars.

THE ILLINOIS TRACTION SYSTEM COMPANY is inquiring for 100 box cars, and 100 coal cars.

THE NEW YORK, NEW HAVEN & HARTFORD has ordered two transformer cars from the Standard Steel Car Company.

THE ATLANTIC COAST LINE is inquiring for 50 steel underframes for flat cars for use on the Charleston & Western Carolina.

THE FLORIDA EAST COAST has ordered 10 caboose cars and 200 ventilated sheathed box cars from the Mt. Vernon Car Manufacturing Company and 200 steel flat cars from the American Car & Foundry Company.

Passenger Cars

THE CHICAGO & WESTERN INDIANA is inquiring for repairs to 28 coaches, one baggage, one accommodation mail and baggage and one mail car.

THE PACIFIC ELECTRIC, reported in the *Railway Age* of May 26 as inquiring for 50 side door passenger cars, and about to ask for a number of motor-driven cars, is now inquiring for 50 electric motor coaches 42 ft. long, also for 50 center entrance cars 52 ft. long.

THE ATCHISON, TOPEKA & SANTA FE, reported in the *Railway Age* of April 28 as inquiring for 50 express refrigerator cars of 40 tons' capacity, has ordered this equipment from the General American Car Company. This company is also inquiring for four private cars.

Iron and Steel

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 2,380 tons of deck plate girders and truss spans.

THE NORFOLK & WESTERN has ordered 200 tons of structural steel for turntables from the Virginia Bridge & Iron Works.

THE CHICAGO, INDIANAPOLIS & LOUISVILLE is inquiring for 400 tons of structural steel for a freight house at Indianapolis, Ind.

THE SOUTHERN RAILWAY has ordered 33,000 tons of steel rail for delivery during 1923. This order includes 25,500 tons of 100-lb. section and 7,500 tons of 85-lb. section rail. The Tennessee Coal, Iron & Railroad Company will roll 23,000 tons of the above at its Ensley, Ala., plant; 8,000 tons were ordered from the Bethlehem Steel Company, and 2,000 tons from the Illinois Steel Company. This brings the Southern's purchase of new steel for 1923 to 73,000 tons.

Machinery and Tools

THE ILLINOIS CENTRAL has ordered a 90-in. driving wheel lathe, also a 48-in. car wheel borer.

THE ATCHISON, TOPEKA & SANTA FE is inquiring for one 1,000-lb. single frame standard type steam hammer and one 3½-in. upsetting and forging machine.

THE CHICAGO, BURLINGTON & QUINCY is inquiring for one motor-driven horizontal single end punch, size No. 2, with 12-in. throat, 1¾-in. stroke and capacity of one-in. hole in one-in. steel.

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for one motor-driven 48-in. swivel head turning and boring mill, one motor-driven 16-in. portable engine lathe, one belt-driven 60-ton rod press and one motor-driven 36-in. engine lathe.

Miscellaneous

THE CHICAGO, ROCK ISLAND & PACIFIC is inquiring for 500,000 ft. B. M. of yellow pine stringers, caps, sway braces and ties.

THE DELAWARE & HUDSON has given an order to the Baker Manufacturing Company, Saratoga Springs, N. Y., for 14 tractor tender trucks.

Signaling

THE SOUTHERN PACIFIC has ordered from the General Railway Signal Company an electric interlocking for installation at Redwood Junction, Cal.; the machine is model 2 unit lever type, 32 levers.

THE ATCHISON, TOPEKA & SANTA FE has ordered from the General Railway Signal Company an electric interlocking for installation at Fullerton, Cal.; model 2 unit lever machine, eight working levers.

THE MICHIGAN CENTRAL has contracted with the General Railway Signal Company for furnishing and installing a mechanical interlocking at Schaeffer Road, Detroit, Mich., 36-lever machine with 24 working levers.

THE ILLINOIS CENTRAL has ordered from the Union Switch & Signal Company material for an electro-pneumatic push button switch machine for the Markham Classification Yard; 72 buttons to operate 69 switches. Alternating current track circuits will be used.

THE LOUISVILLE & NASHVILLE has authorized the installation of automatic block signaling between Montgomery, Ala., and Mobile, 178 miles, single track. Semaphores will be used with the exception of 25 miles of light signals at the south end, which includes six drawbridge interlocking plants. The plans include the floating battery system for the entire installation.

Supply Trade News

The Chicago Bridge & Iron Works will erect an addition to its factory at Greenville, Pa.

The Edgewater Steel Company has removed its offices from 316 McCormick building to 1335 Peoples Gas building, Chicago, Ill.

The Pettibone-Mulliken Company, Chicago, is preparing plans for alterations to its foundry, to cost approximately $20,000.

H. B. Crantford, representative of the railway sales division of the **Electric Storage Battery Company, with** headquarters at Chicago, has been promoted to manager of railway signal sales, with headquarters at Philadelphia, Pa.

F. E. Lister has been appointed service engineer of the **Franklin Railway Supply Company, Inc.,** New York City. Mr. Lister was formerly in railway service. In 1908 he joined the staff of the Railroad Gazette, New York, as associate editor, where he remained for three years. Since 1921, Mr. Lister has been engaged in engineering and sales work as a manufacturer's representative in New York City.

Norman F. Brown, vice-president of the Dravo Contracting Company, Pittsburgh, Pa., has resigned, effective June 1. Mr. Brown will open an office in Pittsburgh, Pa., to engage in private practice as a consulting engineer dealing with railroad and transportation problems and municipal work. He previously served as assistant to the chief engineer on the Pennsylvania Railroad, director of the Department of Public Works in the City of Pittsburgh, and then with the Dravo Contracting Company.

The Westinghouse Electric & Manufacturing Company on May 26 formally opened its new renewal parts plant on Lang avenue, Homewood, Pittsburgh, Pa. **E. C. Brandt** is manager of the new plant. Mr. Brandt has been a Westinghouse employee for 18 years. **W. C. Henderson,** formerly general foreman of the railway department at the East Pittsburgh main works of the Westinghouse Company, is superintendent. **F. F. Rohrer** will direct the sales activity and **A. L. Broomall** will be renewal parts engineer.

The Palmyra Packing Company has been incorporated in New York, with general offices and factories at Palmyra, N. Y., to manufacture a complete line of asbestos, flax, rubber and duck packings for locomotives and shop machinery. The officers of the company are **John N. Todd,** president, who was for fifteen years, until last October, general sales manager of the Garlock Packing Company; **Frank W. Coats,** vice-president, formerly vice-president of the Crandall Packing Company; **Samuel H. Hunt,** treasurer, a capitalist of Palmyra, and **Charles McLouth,** secretary, an attorney of Rochester, N. Y. The manufacturing and sales organization is composed of expert packing makers and experienced packing salesmen.

T. E. Simpers, formerly manager of the Westinghouse Electric & Manufacturing Company, East Pittsburgh, Pa., has been appointed export representative of the industrial department, and for the present **J. R. Olnhausen,** manager of the textile section will have supervision over Mr. Simper's former duties. **C. H. Long,** manager of the contract section of the railway department, has been appointed a section manager of the light traction division. **R. W. Soady** has been appointed manager of the contract section to succeed Mr. Long. In the Detroit office of the company, **W. P. Jend** has been appointed manager of the merchandising division to succeed **F. D. Koelbel,** who will take up general duties in connection with both the central station division and the merchandising division.

THE CHICAGO, ROCK ISLAND & PACIFIC has issued an eight-page booklet describing its new passenger cars and its 1923 program for increased service.

Railway Construction

ATCHISON, TOPEKA & SANTA FE.—This company, jointly with the Chicago, Rock Island & Pacific, the Missouri-Kansas-Texas and the St. Louis-San Francisco, will construct a union passenger station at Oklahoma City, Okla., on the site of the present Santa Fe station, the state supreme court having sustained the corporation commission in ordering the construction of the union depot.

BALTIMORE & OHIO.—This company has awarded a contract to the Jobson-Gifford Company, New York, for the erection of new superstructures for two highway bridges over its lines at Clayton and Barksdale, Md., and for the erection of a new span in a railroad bridge at Canton, Baltimore, Md.

CANADIAN PACIFIC.—This company has awarded a contract to Grant Smith & Company and MacDonnell, Ltd., of Vancouver, B. C., for the grading of the first 50 miles of the Tuffnell branch, reported in the *Railway Age* of May 19. This company has also awarded a contract to W. A. Dutton, Winnipeg, Man., for the grading of the first section of the Wymark branch, reported in the *Railway Age* of March 31.

HOUSTON & TEXAS CENTRAL.—This company will soon call for bids for the construction of the cut-off at Dallas, Tex., reported in the *Railway Age* of April 28. The total cost is estimated at $600,000.

MISSISSIPPI CENTRAL.—This company will relocate and reduce the grade on five miles of its main line near Hattiesburg, Miss., at a cost of approximately $100,000.

MICHIGAN CENTRAL.—This company will elevate its tracks at Green street and Central avenue, Detroit, Mich.

NATIONAL RAILWAYS OF MEXICO.—This company is making efforts to finance the completion of the line from Allende, Coahuila, Mexico, to Villa Atuna, a point across the Rio Grande river from Del Rio, Tex. The proposed line is approximately 75 miles long and part of the work is finished. The cost of completion of the line is estimated at approximately $1,000,000.

OREGON LUMBER ROAD.—Construction of 80 miles of line northwest from Crane, Ore., via Burns to the Malheur National Forest is planned by Fred Herrick, a lumber operator of St. Maries, Ida. The location surveys will be made at once and construction is expected to begin this year and to be completed before the close of 1924.

OREGON-WASHINGTON RAILROAD & NAVIGATION COMPANY.—This company plans extensions to the freight terminal facilities at the Albina docks at Portland, Ore., consisting of one dock with shed, 137 ft. by 360 ft.; one open wharf, 80 ft. by 120 ft.; one warehouse, 119 ft. by 300 ft.; one grain elevator of 310 000 bu. capacity, and a double-track trestle, 180 ft. long. Approximately 3,000 ft. of additional storage tracks will also be constructed.

PENNSYLVANIA.—An appropriation of $500,000 has been made for the construction of a masonry dam in Tipton Valley about ten miles east of Altoona, to supply the shops and railroad yards with an adequate quantity of water. Over nine million gallons of water are consumed every working day by these shops; almost double the quantity used by the entire city of Altoona, with its population of 70,000. The new dam will be about 400 ft. long, 78 ft. high, and 60 ft. thick at the base. It will involve 18,000 cu. yd. of excavation and will make a lake 32 acres in extent, with a capacity of 250 million gallons. Tipton Run is a pure mountain stream very desirable for locomotive uses.

PHILADELPHIA & READING.—In connection with the elimination of certain grade crossings and changes in the highways at Elkins Park, Pa., this company has awarded a contract to C. P. Bower, Philadelphia, Pa., for the construction of a three-span concrete and steel overhead bridge south of Ashbourne road.

SOUTHERN.—This company will construct a new planing mill at Princeton, Ind., and will remodel the old mill and boiler shop at that point, at an estimated cost of $275,000.

Railway Financial News

BALTIMORE & OHIO.—*Asks Authority to Abandon Branch Line.*—This company has applied to the Interstate Commerce Commission for authority to abandon a part of its Millersburg branch from South Wooster to Millersburg, Ohio, 16.81 miles.

BARNEGAT RAILROAD.—*Abandonment.*—The New Jersey Public Utilities Commission has approved the application of the company to abandon its 8 miles of road June 6. The entire $50,000 capital stock is owned by the Pennsylvania Railroad.

BUFFALO & SUSQUEHANNA.—*Dividends.*—This corporation has declared the regular semi-annual dividend of 2 per cent on the preferred and the regular dividend of 1¾ per cent on the common, and an extra of 2½ per cent on the common. The dividends are payable June 30 to stock of record June 15.

Three months ago 2½ per cent extra was declared on the common. It is the expectation to maintain this rate of extra disbursements for the remaining quarters this year, so that there will be a total of 10 per cent in extra dividends (in addition to the 7 per cent regular), equaling the 10 per cent extra dividend for 1922 declared in a lump sum last November.

CENTRAL OF GEORGIA.—*Equipment Trust Authorized.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $2,910,000 of Central of Georgia equipment trust certificates to be issued by the Bank of North America and Trust Company and sold at not less than 95½.

CHESAPEAKE & OHIO.—*Transfer Agents.*—On and after June 1 J. P. Morgan & Co. will act as transfer agents of the stock of this company and of its subsidiary, the Hocking Valley.

CHICAGO, MILWAUKEE & ST. PAUL.—*Equipment Trust Authorized.*—This company has been authorized by the Interstate Commerce Commission to assume obligation and liability in respect of $13,500,000 of equipment trust certificates to be sold at not less than 95½.

CHICAGO, ROCK ISLAND & PACIFIC.—*Asks Authority to Issue Notes.*—This company has applied to the Interstate Commerce Commission for authority to issue $7,000,000 of three-year, 5½ per cent secured gold notes to be secured by $11,666,000 of first and refunding mortgage gold bonds, the proceeds to be used for additions and betterments, including a first payment on equipment. The notes have been sold at 97½ to a syndicate headed by Speyer & Co.

ERIE.—*Equipment Trust Certificates Authorized.*—The Interstate Commerce Commission has authorized this company to assume obligation and liability in respect of $7,860,000 of equipment trust certificates to be sold at not less than 97.

PEORIA & EASTERN.—*Reorganization.*—This company, whose line extends from Springfield, Ohio, through Indianapolis, Ind., to Peoria, Ill., and which has been operated by the Cleveland, Cincinnati, Chicago & St. Louis under lease as the Peoria and Eastern division of the latter road, will be operated as a separate unit of the New York Central system, independent of the Big Four. With the exception of the office of general manager, to which L. S. Rose has been appointed, as reported in this issue, the present officers of the Cleveland, Cincinnati, Chicago & St. Louis will have jurisdiction over their respective departments on the Peoria & Eastern.

READING COMPANY.—*Bondholders' Committee Approves Plan.*—The third modified segregation plan, which was approved on May 22 by the United States District Court of Eastern Pennsylvania, has also been approved by the bondholders' protective committee for the general mortgage bonds of the Reading Company. The committee has sent the following notice to the bondholders:

"The committee under deposit agreement of July 1, 1922, between the committee, J. P. Morgan & Co. and Drexel & Co., as depositaries and holders of said bonds, have approved of a plan for the adjustment of the affairs and properties of said companies and modification of the terms and provisions of the said company and security thereof."

RICHMOND, FREDERICKSBURG & POTOMAC.—*Authorized to Issue Dividend Obligations.*—The Interstate Commerce Commission has authorized this company to issue $5,417,400 of dividend obligations to be distributed as a dividend, on condition that it shall not, without first procuring permission from the commission, dispose of the stock which it now holds in the Richmond Terminal Company and that certain quick assets shall not be sold or otherwise disposed of unless and until certain additions and betterments are paid for from other sources.

ST. LOUIS-SAN FRANCISCO.—*Annual Report.*—This company's annual report for 1922 is reviewed in an article on another page of this issue entitled "Frisco Has Improved Markedly Since Reorganization." See also excerpts from annual report on adjacent pages.

TEXARKANA & FORT SMITH.—*Application to Acquire Dock Company Dismissed.*—The Interstate Commerce Commission has dismissed this company's application for authority to acquire control by lease of the properties of the Port Arthur Canal & Dock Company on the ground that the latter is not a carrier within the meaning of Paragraph 2 of Section 5 of the interstate commerce act.

UNION PACIFIC SYSTEM.—*Annual Report.*—The annual report for the year ended December 31, 1922, issued this week, shows a surplus of $6,119,407 as compared with a surplus of $3,841,780 in 1921.

The income statement follows:

	1922	1921	Increase or Decrease
Operating revenues	$192,877,122	$200,970,219	—$8,093,097
Operating expenses	143,846,229	148,012,395	—4,166,165
Revenues over expenses	49,030,892	52,957,824	—3,926,932
Taxes	13,251,551	12,847,155	404,397
Uncollectible railway revenues	13,274	39,514	—26,239
Railway operating income	35,766,067	40,071,156	—4,305,090
Rents from use of joint tracks, etc.	1,208,517	1,191,492	17,026
Hire of equipment—debit balance, etc.	3,478,266	5,946,238	—2,467,971
Net income from transportation operations	33,496,318	35,316,410	—1,820,092
Income from investments	15,749,563	11,941,268	3,808,295
Total income	49,245,881	47,257,678	1,988,203
Fixed and other charges	16,906,157	17,194,825	—288,668
Net income from all sources	32,339,723	30,062,853	2,276,870
Dividends on stock of Union Pacific Railroad Co.:			
Preferred stock at 4 per cent	3,981,740	3,981,740	.....
Common stock at 10 per cent	22,229,160	22,229,160	.....
Sinking fund requirements	9,417	10,173	—757
Total appropriations of net income.	26,220,317	26,221,073	—757
Surplus, transferred to Profit and Loss	6,119,407	3,841,780	2,277,627

Dividends Declared

Albany & Susquehanna.—$4.50, semi-annually, payable July 1 to holders of record June 15.

Boston & Albany.—$2.50, quarterly, payable June 30 to holders of record May 31.

Buffalo & Susquehanna.—Common, 1¾ per cent, quarterly; common (extra), 2½ per cent; preferred, 2 per cent; all payable June 30 to holders of record June 15.

Chesapeake & Ohio.—Common, 2 per cent, semi-annually; preferred "A," 3¼ per cent, semi-annually; both payable July 1 to holders of record June 8.

Chicago, Burlington & Quincy.—5 per cent, semi-annually, payable June 25 to holders of record June 19.

Chicago, Rock Island & Pacific.—6 per cent preferred, 3 per cent; 7 per cent preferred, 3½ per cent; both payable June 30 to holders of record June 8.

Colorado & Southern.—1st preferred, 2 per cent, semi-annually, payable June 30 to holders of record June 19.

Fonda, Johnstown & Gloversville.—Preferred, 1¾ per cent, quarterly payable June 15 to holders of record June 11.

Hocking Valley.—2 per cent, semi-annually, payable June 30 to holders of record June 8.

Lackawanna Railroad of New Jersey.—1 per cent, quarterly, payable July 2 to holders of record June 9.

Morris & Essex.—$1.75, semi-annually, payable July 2.

New York, Lackawanna & Western.—$1.25, quarterly, payable July 2 to holders of record June 14.

St. Louis Southwestern.—Preferred, 1¼ per cent, quarterly, payable July 2 to holders of record June 16.

Trend of Railway Stock and Bond Prices

	May 29	Last Week	Last Year
Average price of 20 representative railway stocks	64.99	62.59	67.22
Average price of 20 representative railway bonds	83.78	82.83	86.28

Annual Report

St. Louis-San Francisco Railway Company

TO THE STOCKHOLDERS:

Your Directors submit herewith the annual report for the year ended December 31, 1922.

MILES OF ROAD OPERATED

The mileage in operation at the end of the year, compared with the previous year, was as follows:

	1922	1921	Decrease
Main line and branches owned	3,935.94	3,935.94	....
Leased lines	1,214.70	1,214.70	....
Lines operated under trackage rights	95.69	105.39	9.70
Total road operated	5,246.33	5,256.03	9.70

The decrease of 9.70 miles is due to discontinuing the use of Atchison, Topeka & Santa Fe Railway Company's tracks between Avard and Waynoka, Okla.

RESULTS FOR THE YEAR

Operating revenue		$83,008,022.65
Operating expenses		62,631,731.26
Net operating revenue		$20,376,291.39
Taxes	$3,726,683.89	
Other operating charges	1,287,773.44	5,014,457.33
Operating income		$15,361,834.06
Non-operating income		494,649.61
Gross income		$15,856,483.67
Deductions from income		672,271.64
Balance available for interest, etc		$15,184,212.03
Interest on fixed charge obligations		9,887,795.06
Balance		$5,296,416.97
Interest on cumulative adjustment mortgage bonds		2,431,884.43
Balance		$2,864,532.54
Interest on income mortgage bonds		2,111,520.00
Balance		$753,012.54

During the year there was effected final settlement with the Interstate Commerce Commission of the Company's claims under the guaranty provisions of Section 209, as amended by Section 212, Transportation Act, 1920. A summary of the settlement follows:

Amount claimed by the Company		$7,098,934.41
Less the following adjustments:		
Reduction of amount claimed as allowance for guaranty period maintenance of road and equipment	$745,036.02	
Reduction of amount claimed as estimated liabilities of the guaranty period unaudited at date of filing the claim	192,661.30	
Miscellaneous minor reductions	20,816.61	
Total reductions		958,513.93
Amount determined by the Commission as necessary to make good the guaranty		$6,140,420.48
Amount of advances and partial payments received by the Company previous to final settlement		5,083,000.00
Amount received by the Company in final settlement		$1,057,420.48

SECURITIES ISSUED, SOLD OR PLEDGED

During the year the Company entered into a lease and agreement constituting St. Louis-San Francisco Equipment Trust Series AA, under which there were issued $6,000,000 principal amount of Equipment certificates dated September 1, 1922, bearing interest at the rate of 5% per annum, payable semi-annually and maturing serially from September 1, 1923, to September 1, 1937, inclusive.

The notes were disposed of at 96% of their face value and interest and the proceeds placed in special deposits, to be used in payment for 75% of the cost of the following equipment:—

15 Heavy mountain type passenger locomotives.
35 Mikado freight locomotives.
6 Boosters (to equip three of the passenger and three of the freight locomotives).
1,500 All steel self clearing 55 ton hopper coal cars.
1,200 Single sheathed steel underframe and superstructure 40 ton box cars.
300 Steel underframe stock cars.

On January 13, 1922 the Company borrowed from the United States Government $3,000,000, giving its note bearing interest at 6% per annum payable semi-annually on March 1st and September 1st, and maturing March 1, 1930, and depositing as security therefor $4,000,000 Prior Lien Mortgage 6% Bonds, Series C.

As stated in the annual report for the year ended December 31, 1921, the temporary bank loans aggregating $2,000,000, which were outstanding as of December 31, 1921, were paid off and the Prior Lien Mortgage 6% Bonds, Series C, in the face amount of $2,664,000, which were pledged as security therefor, returned to the Company's treasury, thereby increasing the treasury holdings to $10,932,000. Of this amount, $4,000,000 was pledged as stated above and the balance, $6,932,000, was converted into the newly created Series D, 5½% Bonds, dated January 1, 1922, maturing January 1, 1942, and sold May 8, 1922, at 90½ and interest.

During the year $659,300, additional amount of St. Louis and San Francisco Railroad Company Stock Trust Certificates for The Kansas City, Fort Scott and Memphis Railway Company Preferred Stock were exchanged under the plan of reorganization, making in all a total of $14,622,100 acquired under the plan in exchange for $10,966,575 of Prior Lien Mortgage 4% Gold Bonds and $3,655,525 of Adjustment Mortgage 6% Bonds. Stock Trust Certificates amounting to $256,900 were exchanged during the year for a like amount of The Kansas City, Fort Scott and Memphis Railway Company Preferred Stock, increasing the Preferred Stock of The Kansas City, Fort Scott and Memphis Railway Company outstanding in the hands of the public, to $341,200.

SECURITIES PURCHASED

During the year the Company purchased $390,000 First Mortgage Bonds of Kansas & Missouri Railroad Company which matured August 1, 1922, and $1,000,000 First Mortgage Bonds of Birmingham Belt Railroad Company which matured October 1, 1922.

ADDITIONS AND BETTERMENTS

The amounts charged to Capital Account during the year for additional main track (described in detail under the head of "Double Track"), other improvements to roadway and structures, shop buildings, etc., for the purchase of new equipment and for improvements to existing equipment, were as follows:

ROAD	
Widening cuts and fills	$95,724.80
Ballasting	237,441.16
Rail and other track material	364,644.44
Bridges, trestles and culverts	293,341.25
Tunnels and subways	24,320.00
Elimination of grade crossings	3,604.00
Grade crossings and signals	26,517.00
Additional main tracks	1,135,335.54
Additional yard and industry tracks	151,023.95
Changes of grade and alignments	63,815.00
Signals and interlocking plants	29,441.00
Telegraph and telephone lines	495.00
Section houses and other roadway buildings	2,240.12
Fences	35,744.74
Freight and passenger stations	150,075.96
Fuel stations and appurtenances	197,641.09
Water stations and appurtenances	19,191.80
Shop buildings, engine houses, etc	36,339.57
Power plants, shop machinery and tools	253,488.62
Assessments for public improvements	77,491.74
All other improvements	26,577.27
Total Road	$3,217,286.05
EQUIPMENT	
Additional units acquired	$81,313.83
Improvements to existing equipment (including 1,673 freight cars, 4 passenger cars and 66 locomotives rebuilt) less retirements	2,660,854.38
Total Equipment	$2,742,168.21
Total Road and Equipment	$5,959,454.26

During the year the Company entered into contract with American Car & Foundry Company for 8 steel coaches and 6 steel chair cars, none of which were delivered at December 31, 1922.

MAINTENANCE

During the year the property has been well maintained; its physical condition being better than at any other time in its history.

There is shown elsewhere in the report a statement of the physical improvement made during the year.

On July 1st, 1922, practically the entire personnel of the Mechanical and Car Departments, excluding officers, went on strike in protest against the decision rendered by the United States Railroad Labor Board reducing wages, effective that date. This action, together with considerable trouble experienced through damage resulting from the strike, seriously handicapped the movement of freight for a time; this, however, was gradually overcome. At the close of the year the shop forces were normal. The new employees formed an association of their own and an agreement was entered into between them and the management October 1st, 1922. This agreement is favorable to both the employees and the Company, and is resulting in greatly increased efficiency and more economical operation through the elimination of objectionable rules placed in effect during Federal Control by what was known as the National Agreement. During the latter half of the year, as a natural result, the percentage of locomotives and cars out of service increased to a considerable extent, but this percentage is being gradually reduced and will be reduced more rapidly as the new employees gain more experience and their efficiency increases.

The program established for the rehabilitation of rolling equipment has progressed throughout the year resulting in extensive repairs to many units. The results accomplished through the rebuilding program chargeable to Capital Account are set forth elsewhere in the report.

FUEL

Owing to the strike of the coal miners during the Spring and Summer of 1922, it was necessary to purchase coal in the open market and at prices in excess of contract prices, which had the effect of greatly increasing the cost of fuel. This increase, however, was not felt to any considerable extent until after July 1st, due to the large amount of coal purchased and stored in anticipation of the strike.

The mines in the Alabama field not being affected by the strike, fuel from that source for the maximum tonnage stipulated in contracts was furnished at contract prices.

There was also the additional cost of handling the stored coal and in transporting coal from the Alabama fields to distant points usually supplied from mines in Arkansas, Oklahoma, Kansas and Illinois.

During the last six months of the year the consumption of fuel also increased due to the condition of locomotives resulting from the strike of the mechanical forces.

During the early part of the year it was anticipated that a considerable saving in fuel would result from the greatly improved conditions on the railroad; this, however, was not realized as fully as expected on account of strikes referred to above.

REDUCTION OF FREIGHT RATES

Through the reduction of freight rates on many commodities ordered by the Interstate Commerce Commission effective December 27, 1921, and January 1 and July 1, 1922, and which amounted to approximately ten per cent, the company suffered a shrinkage in its Freight Revenue estimated at $3,600,000 for the year.

NEW INDUSTRIES

The following is a list of the new industries located on the line during the year:

Creameries	2
Electric power plants	2
Sand and gravel plants	2
Oil loading racks	4
Oil refineries	6
Compresses and gins	5
Wholesale groceries	9
Grain elevators	10
Manufacturing plants	21
Oil distributing plants	23
Oil well supplies	43
Warehouses	30
Storage yards	52
Miscellaneous	22
Total	231

INCOME ACCOUNT FOR YEAR ENDED JUNE 30, 1922

At the time of reorganization, and the preparation of the Adjustment Mortgage and the Income Mortgage of the Company, the fiscal year for the making of the annual report to the Interstate Commerce Commission ended June 30. The same fiscal year was adopted in both the Adjustment Mortgage and the Income Mortgage. This has since been changed by the Interstate Commerce Commission so that the period for making the annual reports is now the calendar year instead of the year ending June 30, and as a consequence the annual report filed with the Commission does not show income for the fiscal year ending June 30. The following statement showing the income account for the fiscal year ended June 30, 1922, as certified by Messrs. Deloitte, Plender, Griffiths & Company, Certified Public Accountants, is therefore submitted.

Operating revenues	$85,484,139.50	
Operating expenses	62,453,964.97	
Net operating revenue		$23,030,174.53
Operating charges:		
Railway tax accruals	$4,022,968.63	
Uncollectible railway revenues	46,862.07	
Hire of equipment—Net	231,051.58	
Joint facility rents—Net	226,899.86	
Total operating charges		4,527,782.14
Operating income		$18,502,392.39
Other income:		
Rentals	$216,992.64	
Interest	244,750.06	
Miscellaneous	31,524.96	
Total other income		493,267.66
Gross income		$18,995,660.05
Deductions from income:		
Rentals	$232,705.47	
Miscellaneous tax accruals	16,282.61	
Miscellaneous income charges	175,282.34	
Sinking funds	225,364.01	
Total deductions from income		649,634.43
Balance available for interest, etc		$18,346,025.62
Interest on fixed charge obligations		9,728,701.22
Balance		$8,617,324.40
Interest on cumulative adjustment mortgage bonds		2,420,406.96
Balance		$6,196,917.44
Interest on income mortgage bonds		2,111,520.00
Balance		$4,085,397.44

Announcement is made, with profound regret, of the death on December 25, 1922, of Alexander Hilton, Third Vice President of this Company, in charge of Traffic.

Mr. Hilton's connection with the Company extended over a period of twenty-two years, during which time his services were both efficient and faithful. As a Traffic Executive his ability was recognized throughout the country.

The acknowledgments of the Board are renewed to the officers and employes for all faithful and efficient service.

By order of the Board of Directors,

E. N. BROWN, Chairman, J. M. KURN, President

CONSOLIDATED INCOME ACCOUNT

YEAR ENDED DECEMBER 31ST, 1922

	Six months ended June 30th, 1922	Six months ended December 31st, 1922	Twelve months ended December 31st, 1922
Average mileage operated			5,246.33
Operating revenues—			
Freight	$28,996,027.59	$28,582,601.17	$57,578,628.76
Passenger	9,063,485.48	10,058,032.69	19,121,518.17
Excess baggage	76,563.58	69,371.93	145,935.51
Parlor and chair car	4,891.86	6,019.84	10,911.70
Mail	784,402.38	735,707.76	1,520,110.14
Express	1,016,565.40	1,282,933.83	2,299,499.23
Other passenger train	181,898.67	16,207.06	198,105.73
Milk	106,069.31	134,046.64	240,115.95
Switching	506,267.57	626,453.93	1,132,721.50
Special service train	19,933.35	1,309.54	21,242.89
Station, train and boat privileges	61,665.51	48,593.29	110,258.80
Storage—Freight	42,205.06	34,410.97	76,616.03
Demurrage	92,436.55	106,122.00	198,558.55
Other	171,244.63	182,555.06	353,799.69
Total operating revenues	$41,123,656.94	$41,884,365.71	$83,008,022.65
Operating expenses—			
Maintenance of way and structures	6,353,259.94	$6,096,010.82	$12,449,270.76
Maintenance of equipment	6,649,759.55	6,314,029.85	12,963,789.40
Maintenance of equipment—Depreciation	1,166,439.01	1,239,457.70	2,405,896.71
Traffic	545,271.56	540,088.67	1,085,360.23
Transportation	14,976,971.01	16,613,543.04	31,590,514.05
Miscellaneous operations	1,384.31	1,252.39	2,636.70
General	1,222,642.47	1,226,819.18	2,449,461.65
Transportation for investment—Cr.	147,793.26	167,404.98	315,198.24
Total operating expenses	$30,767,934.59	$31,863,796.67	$62,631,731.26
Net operating revenue	$10,355,722.35	$10,020,569.04	$20,376,291.39
Operating charges—			
Railway tax accruals	$2,055,876.22	$1,670,807.67	$3,726,683.89
Uncollectible railway revenues	29,978.60	31,163.38	61,141.98
Hire of equipment—Net—Dr.	52,080.20	1,103,912.18	1,051,831.98
Joint facility rents—Net—Dr.	130,178.09	44,621.39	174,799.48
Total operating charges	$2,163,952.71	$2,850,504.62	$5,014,457.33
Operating income	$8,191,769.64	$7,170,064.42	$15,361,834.06
Non-operating income—			
Other income	239,075.05	255,574.56	494,649.61
Gross income	$8,430,844.69	$7,425,638.98	$15,856,483.67
Deductions from income—			
Rentals	$120,640.71	$118,856.58	$239,497.29
Miscellaneous taxes	12,582.27	3,785.71	16,367.98
Miscellaneous income charges	100,870.57	70,292.27	171,162.84
Sinking and other funds	119,041.33	126,202.20	245,243.53
Total deductions from income	$353,134.88	$319,136.76	$672,271.64
Balance available for interest, etc.	$8,077,709.81	$7,106,502.22	$15,184,212.03
Interest on fixed charge obligations	4,870,320.94	5,017,474.12	9,887,795.06
Balance	$3,207,388.87	$2,089,028.10	$5,296,416.97
Interest on cumulative adjustment mortgage bonds	1,217,902.39	1,213,982.04	2,431,884.43
Balance	$1,989,486.48	$875,046.06	$2,864,532.54
Interest on income mortgage bonds	1,055,760.00	1,055,760.00	2,111,520.00
Balance	$933,726.48	$180,713.94	$753,012.54

NOTE—The transactions of the Kansas City, Clinton and Springfield Railway Company, which Company is operated separately, are not included in the above but the amounts advanced by the Kansas City, Fort Scott and Memphis Railway Company to meet the interest on the Kansas City, Clinton and Springfield Railway Company Bonds have been charged against income.

CONSOLIDATED PROFIT AND LOSS ACCOUNT

YEAR ENDED DECEMBER 31ST, 1922

CREDIT

Balance at credit, January 1st, 1922		$4,585,881.70
Balance of income account for the year	$753,012.54	
Donations, account industrial tracks (see contra)	119,778.80	
Miscellaneous adjustments (Net)	1,579,565.84	
		2,452,357.18
		$7,038,238.88

DEBIT

Surplus appropriated for investment in physical property (see contra)	$119,778.80	
Debt discount extinguished through surplus	940,848.48	
		1,060,627.28
BALANCE AT CREDIT, DECEMBER 31ST, 1922		$5,977,611.60

[ADVERTISEMENT]

Railway Officers

Executive

R. N. Begien, general manager of the Baltimore & Ohio with headquarters at Cincinnati, Ohio, has resigned to become operating vice-president of the Chesapeake & Ohio.

Operating

I. A. Macpherson, division superintendent on the Canadian National, with headquarters at Melville, Sask., has been transferred to the Regina division, with headquarters at Regina, Sask., succeeding M. D. Thompson.

F. W. Urbahns, whose promotion to division superintendent of the Minneapolis, St. Paul & Sault Ste. Marie, with headquarters at Fond du Lac, Wis., was reported in the *Railway Age* of May 19, was born on August 30, 1868, at Valparaiso, Ind. He entered railway service in March, 1884, as a telegraph operator on the New York, Chicago & St. Louis and was promoted to train dispatcher in June, 1888. He served in this capacity until September, 1900, when he left railway service to become secretary of the waterworks commission at Fort Wayne, Ind. In December, 1904, he was appointed chief dispatcher of the Wisconsin Central, and in January, 1905, was promoted to trainmaster. When the operation of the Wisconsin Central was taken over by the Minneapolis, St. Paul & Sault Ste. Marie, he continued as trainmaster and in June, 1911, was promoted to assistant superintendent of the Southern district, with headquarters at Chicago. Mr. Urbahns was promoted to acting division superintendent, with headquarters at Fond du Lac, Wis., during the period of the war, returning subsequently to his position as assistant superintendent at Chicago. He was serving in this capacity at the time of his recent promotion to division superintendent, with headquarters at Fond du Lac.

F. W. Urbahns

H. B. Voorhees, general manager of the New York Terminal Lines of the Baltimore & Ohio with headquarters at New York, has been appointed general manager of the Western Lines with headquarters at Cincinnati, Ohio, succeeding R. N. Begien, resigned. **R. B. White,** general superintendent of the Maryland district with headquarters at Baltimore, Md., has been appointed general manager of the New York Terminal Lines with headquarters at New York, succeeding Mr. Voorhees. **C. W. Van Horn,** superintendent of Cumberland division with headquarters at Cumberland, Md., has been appointed general superintendent of the Maryland district with headquarters at Baltimore, succeeding Mr. White. **R. W. Brown,** superintendent of the Connellsville division with headquarters at Connellsville, Pa., has been appointed superintendent of the Cumberland division with headquarters at Cumberland, succeeding Mr. Van Horn. **G. W. Martin,** superintendent of the Pittsburgh Terminal with headquarters at Pittsburgh, Pa., has been appointed superintendent of the Connellsville division with headquarters at Connellsville, succeeding Mr. Brown. **W. F. Booth,** assistant superintendent of the Pittsburgh Terminal with headquarters at Pittsburgh, has been appointed superintendent, succeeding Mr. Martin.

L. S. Rose, assistant to the general manager of the Cleveland, Cincinnati, Chicago & St. Louis, with headquarters at Cincinnati, Ohio, has been appointed to the newly created position of general manager of the Peoria & Eastern, with headquarters at Indianapolis, Ind. This road, which extends from Springfield, Ohio, through Indianapolis, Ind., to Peoria, Ill., is leased to the Big Four and has been operated as the Peoria and Eastern division of that road. It will now be operated as a separate unit of the New York Central System. Mr. Rose was born in October, 1868, and graduated from Rose Polytechnic Institute in 1892. He entered railway service in 1882 as a telegraph messenger on the Delaware & Hudson, later being promoted to telegraph operator. After leaving school in 1892, he served as a rodman and later as an assistant engineer on the Cleveland, Cincinnati, Chicago & St. Louis, until September, 1895, when he was appointed roadmaster on the Central Vermont. He returned to the Cleveland, Cincinnati, Chicago & St. Louis in July, 1896, as assistant engineer and was appointed supervisor of track in February, 1897. Mr. Rose was promoted to acting engineer maintenance of way, with headquarters at Mt. Carmel, Ill., on September 1, 1899, and continued in this capacity until April, 1, 1901, when he was promoted to engineer maintenance of way of the St. Louis division with headquarters at Mattoon, Ill. On June 1, 1907, he was promoted to signal engineer of the Big Four with headquarters at Cincinnati, Ohio, and to valuation engineer on November 1, 1913. Mr. Rose was promoted to assistant to the Federal manager on September 1, 1918, and held this position until the termination of Federal control on March 1, 1920, when he was appointed assistant to the general manager, with headquarters at Cincinnati. He was serving in this capacity at the time of his recent promotion to general manager of the Peoria & Eastern.

Traffic

P. F. Harding has been appointed general agent of the Yosemite Valley with headquarters at Merced, Cal.

A. H. Davis, general agent for the Grand Trunk and Canadian National, with headquarters at St. Paul, Minn., has been transferred to Minneapolis, succeeding W. J. Gilkerson.

T. L. Bothwell has been appointed assistant general freight agent of the Gulf, Colorado & Santa Fe, with headquarters at Galveston, Tex., succeeding **C. D. Speer,** who has been transferred to Topeka, Kan.

E. C. Cook, division passenger agent of the New York Central with headquarters at Toledo, Ohio, has been promoted to assistant general passenger agent of the New York Central and the Ohio Central with the same headquarters.

Engineering, Maintenance of Way and Signaling

Carl Cashman has been appointed supervisor of track of the Lehigh Valley with headquarters at Cortland, N. Y., succeeding T. J. Maloney, assigned to other duties.

C. H. Fox, whose promotion to engineer of water service of the Canadian Pacific, Western lines, with headquarters at Winnipeg, Man., was reported in the *Railway Age* of May 26, was educated at McGill University, Montreal, and entered railway service in 1902 as a clerk in the construction department of the Canadian Pacific. Between 1903 and 1906, he served as rodman and transitman at various points on the Manitoba district. He was promoted to resident engineer on various new lines in 1907, and continued in this work until 1910, when he was appointed resident engineer at Fort William, Man., and later at Winnipeg. He was subsequently promoted to assistant division engineer, maintenance of way of the Manitoba district and served in this capacity until 1917. After a year of military service, he returned to the Canadian Pacific in 1919 as division engineer maintenance of way at Regina, Sask., later being transferred to Saskatoon and to Winnipeg. He was later promoted to assistant district engineer of the Manitoba district, with headquarters at Winnipeg, in which capacity he was serving at the time of his recent promotion to engineer of water service.